MCO 112

Health Building Note 23

Hospital accommodation for children and young people

NHS Estates
An Executive Agency of the Department of Health

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Hospital accommodation for children and young people

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About this publication

The Health Building Note series is intended to give advice on the briefing and design implications of Departmental policy.

These Notes are prepared in consultation with representatives of the National Health Service and appropriate professional bodies.

Health Building Notes are aimed at multi-disciplinary teams engaged in:

- designing new buildings;
- adapting or extending existing buildings.

Throughout the series, particular attention is paid to the relationship between the design of a given department and its subsequent management. Since this equation will have important implications for capital and running costs, alternative solutions are sometimes proposed. The intention is to give the reader informed guidance on which to base design decisions.

Health Building Note 23

HBN 23 focuses on the accommodation requirements of a comprehensive children's department located in an acute general hospital.

Dedicated for the care of children and young people and facilitating the attendance of parents/carers, the department provides four functional parts:

- an out-patients suite;
- a child development centre;
- in-patient ward(s);
- a day-care unit;

which are supported by departmental accommodation shared by all staff and including a departmental entrance.

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1.0 Scope of Health Building Note 23

Introduction

1.1 Health Building Note (HBN) 23 provides guidance for the planning and design of a comprehensive children's department in an acute general hospital. It replaces HBN 23 – 'Hospital accommodation for children' (1984).

1.2 This HBN enhances the guidance included in the previous edition by taking account of legislation, research and policy developments promulgated since its publication in 1984 (see Bibliography) and evaluation-in-use of hospital accommodation for children.

The main policy changes reflected in this HBN are:

a. children and young people should be admitted to hospital only if the care they require cannot be as well provided at home or on a day basis;

b. increased emphasis on the need to provide a comprehensive children's department where children and young people can receive continuity of care with others of their own age group;

c. the right of children to have their parents/carers with them at all times unless, exceptionally, this is not in the best interests of the child;

d. provision of accommodation should recognise the need of children and young people for privacy, play, recreation and education, suited to their age, clinical condition and development.

1.3 The cardinal principles which inform all aspects of the Department of Health Guide 'Welfare of Children and Young People in Hospital' (1991), and the 'Charter for Children in Hospital' published by the National Association for the Welfare of Children in Hospital (NAWCH) are reproduced in Appendices 1 and 2 and have been recognised in the preparation of this HBN.

1.4 It is important that doctors, nurses and appropriate other staff with current experience in the health care of children and young people are involved from the initial stages in the planning of hospital accommodation.

1.5 Care has been taken to ensure that the guidance and recommendations for the accommodation described in this HBN are as economical and as flexible as possible without detriment to the standards required for the high quality care and treatment of children and young people.

Range of provision

Inclusions

1.6 This HBN describes a comprehensive children's department which includes:

a. an out-patients suite;

b. a child development centre;

c. in-patient ward(s) which:

   (i) allow children and young people to be grouped appropriately;

   (ii) provide accommodation and facilities for parents/carers;

   (iii) include space for play, recreation and education;

   (iv) recognise the need for patient and family privacy;

d. a day-care unit.

1.7 Children and young people with learning difficulties and who are mentally ill may be admitted to an in-patient ward or the day-care unit in the comprehensive children's department for treatment of an acute physical illness but consideration would need to be given to nursing-staff qualifications and numbers.

Exclusions

1.8 This HBN excludes guidance for:

a. respite-care beds (supplement to this HBN to be prepared). Exceptionally a child or young person with specific health needs which can only be safely met in a hospital environment may be cared for in an in-patient ward in the comprehensive children's department;

b. a neonatal unit (see HBN 21 – 'Maternity department' (1989). Addendum to be prepared dealing with accommodation for bereaved parents);

c. accommodation for children in an accident and emergency department (supplement to HBN 22, 'Accident and emergency department' (1988) to be prepared);

d. a paediatric intensive-care unit (issue of guidance to be considered);

e. in-patient accommodation for children and young people who require:

   (i) highly specialised care such as that which is normally provided in regional and supra-regional centres;

(ii) "strict" isolation, for example those with diseases such as Lassa fever;

f. in-patient and out-patient accommodation for children and young people who are mentally ill (although psychiatric clinics may be held in the out-patients suite in the comprehensive children's department).

Capricode

1.9 Capricode is the Department of Health mandatory procedural framework governing the inception, planning, processing and control of individual health building schemes. The aim is to promote a consistent and streamlined approach to capital development that achieves best use of resources through the selection and construction of relevant and cost-effective schemes that open on time and within budget. It identifies the main activities and provides a framework for delegation with effective management and the proper accounting for expenditure and performance. (See 'Capricode health building procedures', issued with HN(86)32 in October 1986 (in Wales, WHC(86)62).)

Health Building Notes 1, 2 and 45

1.10 HBNs 1 and 2 are an introduction to the planning, design and construction of an acute general hospital. HBN 45 deals with external works to health buildings. They will be relevant to project teams planning a comprehensive children's department.

Cost allowances

1.11 The Departmental Cost Allowances associated with this volume are promulgated in an Annex to an Estate Executive Letter issued separately.

Equipment

1.12 Equipment is categorised into four groups, as follows:

a. Group 1: items (including engineering terminal outlets) supplied and fixed within the terms of the building contract;

b. Group 2: items which have space and/or building construction and/or engineering service requirements and are fixed within the terms of the building contract but supplied under arrangements separate from the building contract;

c. Group 3: as Group 2, but supplied and fixed (or placed in position) under arrangements separate from the building contract;

d. Group 4: items supplied under arrangements separate from the building contract, possibly with storage implications, but otherwise having no effect on space or engineering service requirements.

Group 1 items are provided for in the cost allowances associated with this volume. The Equipment Cost Allowance Guide (ECAG) specifies a sum of money for Group 2 and 3 items.

Works Guidance Index

1.13 This volume contains guidance that is current at the time of publication. Specific issues such as arrangements for dealing with fire, security, energy conservation, etc are covered by other published guidance which must also be taken into account. Some aspects of the guidance in this volume may from time to time be amended or qualified. Project teams should check the current edition of the Works Guidance Index and ensure that they investigate the possibility of changes occurring after the latest published Index.

2.0 General service considerations

Introduction

2.1 This chapter considers current policies for the care of sick children and young people and service issues related to the provision of a comprehensive children's department, including the needs of patients, parents/carers, and staff, the sizing of a department and relationships with whole hospital services.

Classification of hospital patients

2.1 Hospital patients can be classified into three main categories:

a. **in-patients** – who stay in hospital overnight;

b. **out-patients** – who attend for consultations, examinations, investigations and minor procedures and leave as soon as these are finished;

c. **day patients** – who do not require an overnight stay but need a short period of time after a procedure for recovery. Day patients may stay in hospital for a morning, an afternoon or for the whole of the working day.

The care of sick children and young people

General

2.3 Sick children and young people should, if possible, be cared for at home by their families, supported by the primary care services and with help as necessary from elsewhere in the NHS, for example, paediatric community nurses, and in collaboration with other agencies such as social services and education departments.

2.4 If hospital care is necessary, children and young people should be seen wherever possible as **out-patients or day patients**. Only when essential should they be admitted as **in-patients**. Formal admission as a day case or in-patient may be avoided if children and young people visit the comprehensive children's department as **day attenders**, for example, for counselling or familiarisation prior to admission or investigation, or for follow-up after discharge. Patients may be seen in any appropriate space in the comprehensive children's department, but preferably in the out-patients suite.

2.5 In a comprehensive children's department with a permanent medical staff presence, children and young people may be referred to an "open" clinic for investigation, assessment, examination, treatment and, if necessary, admission. General medical practitioners may prefer to refer some children and young people rather than arrange immediate admission. Following triage, children and young people may be referred from the accident and emergency department. Patients may be seen in any appropriate space in the comprehensive children's department, but preferably in the out-patients suite.

2.6 The most important change of recent years in the care of sick children and young people is the increase in the amount of treatment given by parents, taught and supported by professionals. Virtually all children and young people who are admitted as in-patients benefit from parents assisting with their care. Additionally, more treatment, some very complex, is given at home. These developments have contributed to a very significant reduction in average length of stay in hospital.

2.7 Initial impressions of a hospital can be a strong influence on the response of children, young people and their families to hospital care. Children, in particular, are emotionally vulnerable: unhappy experiences of a hospital may adversely affect their development. The parts of a hospital attended by children, therefore, should have a light, attractive and friendly environment which is as domestic as possible given clinical needs.

Age and sex

2.8 Local project teams should agree the age of children and young people to be treated in the comprehensive children's department. Most paediatricians do not take new referrals above the age of 16 years but will continue to see existing patients up to the age of 18 years. The department will need to accommodate infants, toddlers, younger school children and teenagers; as far as practicable designers should take account of their varying needs. However, deciding how many bed spaces to dedicate for a particular age range is very difficult. Numbers of patients admitted in each age range change regularly within the year. Account has also to be taken of their physical and emotional development levels and personal wishes. Children and young people of both sexes can be accommodated in the comprehensive children's department, provided there is recognition of the need for privacy and maintenance of self-respect commensurate with age.

Play

2.9 Play is essential to the intellectual, social and emotional development of children and young people: it

reduces anxiety, facilitates communication and speeds recovery and rehabilitation. Play specialists in hospitals can:

a. contribute to **clinical judgements** through their observation of, and communication with children and young people;

b. help **prepare children and young people** for diagnostic tests, surgery and other invasive procedures;

c. identify children and young people or members of their families who are distressed or **having difficulty coping**;

d. organise play to provide **diversional therapy**;

e. introduce some **normality** into a child's/young person's day by relieving boredom through a structured programme of developmental activity.

(See The Play in Hospital Liaison Committee publication 'Quality Management for Children: Play in Hospital', 1990, and The Save the Children Fund publication 'Hospital: A Deprived Environment for Children? The Case for Hospital Playschemes', 1990.)

2.10 Play rooms/areas should be designated and dedicated: they should not be used for other purposes, particularly for activities which children and young people regard as treatment. Children and young people should see play and day areas as "safe" places. The needs of teenage patients are different from the needs of younger patients and consideration should be given to the provision of separate facilities.

2.11 An outdoor play area will further enable children and young people to continue familiar activities. Patients who are in beds, cots and wheelchairs, and who use walking aids, as well as those who are fully ambulant, should have access to the outdoor play area. "Play" may include:

- quiet activities, such as reading, talking and having picnics;
- more active play, such as sand and water play, and "gardening";
- vigorous activities to allow those who are able to "let off steam", for example, using playground equipment, cycles and pedal cars.

(See HBN 45 – 'External works for health buildings', 1992.)

2.12 Play specialists should be members of project teams planning a comprehensive children's department.

Rehabilitation

2.13 Hospital-based rehabilitation services (occupational therapy, physiotherapy and speech therapy) will need to be provided for children and young people.

Rehabilitation of in-patients may take place in:

a. the in-patient wards, in:

   (i) the bed space;

   (ii) the therapy room;

b. corridors and/or stairs close to the in-patient wards, if walking practice is required;

c. the child development centre (if one is provided and adequate sessions are available);

d. external areas.

2.14 Remedial therapy and rehabilitation of children, including multi-handicapped children who are in-patients, may also take place in the rehabilitation department, provided a separate treatment area is available. Rehabilitation of young people who are in-patients may take place in the rehabilitation department.

2.15 Rehabilitation of children and young people as out-patients may take place, as appropriate, in the spaces referred to in paragraphs 2.13 and 2.14.

Education

2.16 Children and young people in hospital need access to education to:

a. minimise the impact of the interruption to their schooling;

b. maintain their educational progress;

c. make their stay in hospital as normal as possible. The NHS is required to provide for the accommodation needs of children and young people receiving education in hospital. The amount and type of accommodation should be agreed with the Local Education Authority at an early planning stage. An economic rent may be charged to Local Education Authorities in respect of the capital and revenue costs of providing facilities for education in hospitals.

2.17 Education of children and young people in hospital should normally take place in a specially provided classroom but may exceptionally be provided in bed spaces in in-patient wards, in an appropriate area of open space on an in-patient ward, in a day area or, where appropriate, in play areas (see paragraph 2.10). An office for teaching staff and a store for teaching materials are essential.

The benefits of a comprehensive children's department

2.18 Benefits in providing a comprehensive children's department are clearly expressed in 'Welfare of Children and Young People in Hospital', which states:

"Grouping children and young people together – preferably with others of their own age group – facilitates the provision of high quality, cost effective care. It enables:

- *a **children's physician or surgeon** to participate in the general management and professional oversight of the Department (although responsibility for an individual child's medical care may rest with consultants in specialities other than paediatrics);*
- *children to receive **specialist nursing services**, managed and supervised by, and professionally accountable to, a senior nurse with the **RSCN** qualification (or one who has completed the child branch of Project 2000);*
- *the **special welfare needs** of children to be more easily met;*
- ***parents/carers and professionals** to share in the care of the child;*
- ***unrestricted** parental involvement during the child's stay in hospital;*
- *an appropriate **child centred routine** in respect of sleeping and feeding patterns;*
- *the provision of **education**;*
- *provision of facilities for **play**;*
- *the environment to be **furnished and equipped** to meet the needs of children."*

The comprehensive children's department

General

2.19 The comprehensive children's department should provide a child-and-young-person-centred service in child-and-young-person-centred accommodation. The department should have its own entrance from the outside which can be used without patients needing to pass through other parts of the hospital. Each component of the comprehensive children's department should be:

a. dedicated for use by children, young people and their families;

b. welcoming, friendly and help patients and their parents/carers feel at ease.

Out-patients suite

2.20 The main functions of the out-patients suite are:

a. specialist consultation and examination;

b. treatment of children and young people who do not require the facilities of either a day-care unit or in-patient ward;

c. screening for the selection of day patients and in-patients;

d. following up and monitoring the condition of out-patients and day patients;

e. discharging in-patients from the care of the hospital, with referral if necessary to other health services.

2.21 For most children, their first visit to hospital is as an out-patient. Particular care should be taken to create the right initial impression (see paragraph 2.7). The out-patients suite should include accommodation:

for patients:

a. which is an integral part of the comprehensive children's department;

b. where consultation, examination and treatment can be carried out in auditory and visual privacy, with parents/carers present;

c. where children and young people who need psychiatric assessment, care and treatment can be seen with their families;

d. with a designated and suitably equipped play area;

e. where children and young people, with their parents/carers, can eat a midday meal and take light refreshments and beverages;

f. with facilities for weighing and measuring children in privacy;

g. with good access at all doors for wheelchairs and double pushchairs;

for parents/carers:

a. where prams and pushchairs can be safely and securely parked;

b. with facilities for parents/carers, including a private space where mothers may breast-feed their babies and change nappies;

for staff:

a. where administrative, secretarial and clerical activities can be carried out, with facilities for:

   (i) the reception of patients;

   (ii) the consultant paediatricians and their secretaries;

   (iii) visiting consultant medical staff;

   (iv) community paediatric staff.

2.22 Medical staff of all specialties who see children and young people as out-patients should normally do so in the out-patients suite in the comprehensive children's department. If exceptionally it is not practical to provide a separate children's out-patient suite or patients need to attend specialist facilities only provided in the main out-patients department, for example for audiology and ophthalmic tests, a separate waiting area, with a play area, will be required for use by children and young people (see HBN 39 – 'Ophthalmic clinic', 1982 and HBN 12, Supplement 3 – 'ENT and audiological clinics', 1994).

Child development centre

2.23 A child development centre requires facilities for:

a. assessments arising out of referrals made in connection with child health surveillance in primary care settings;

b. assessment of the needs and abilities of children and young people in accordance with statutory requirements, like those in the Education Act 1981, the Children Act 1989 and Chronic Sick and Disabled Persons legislation;

c. delivering and monitoring of therapeutic and support services to provide remedial therapy and rehabilitation.

2.24 Subject to local circumstances and operational policies, a child development centre may be located in a hospital or in the community. Increasingly, assessments are being carried out in the child development centre; in such situations, appropriate accommodation, able to be used flexibly, should be provided for all disciplines involved in the multi-disciplinary assessment of children with special needs and a wide range of disabling conditions.

2.25 Core members of the multidisciplinary team are likely to include:

- a consultant paediatrician (community);
- a paediatric nurse (with specific experience of children with disabilities);
- a specialist social worker;
- a clinical or educational psychologist;
- a teacher experienced in teaching children with special educational needs.
- a speech therapist;
- a physiotherapist;
- an occupational therapist.

2.26 The team will also need to have available to it appropriate clinical specialists from all the relevant disciplines and there should be good liaison arrangements with the child's general medical practitioner and health visitor. Teams may also include other grades of paediatric medical staff, a play specialist, an audiologist, an ophthalmologist, an orthoptist and a dentist. Usually, but not necessarily, the consultant paediatrician leads the team. It is important that the family be involved in all aspects of the child's assessment.

2.27 Children, young people and parents/carers may attend the child development centre for varying periods of time. Initial consultations may last for one and a half to two hours on average; subsequent visits may be for half or full-day sessions.

2.28 Principal objectives which should be observed in planning the child development centre include provision of accommodation:

for patients:

a. with a range of rooms which can be used flexibly for:
   (i) consulting, examination, interview and treatment;
   (ii) assessment, observation and remedial therapy;
   (iii) play;

b. where patients and their parents/carers can consume refreshments/ light meals;

c. with good access at all doors for wheelchairs and double pushchairs;

for parents/carers:

a. where special training and discussion sessions for parents/carers can be held;

b. for feeding and changing babies and young children in private;

c. where prams and pushchairs can be safely and securely parked;

for staff:

a. for the reception of patients;

b. for preparing and serving refreshments/light meals;

c. for office work by staff who work mainly in the child development centre and by staff who work mainly in the community but regularly attend, and need an office base in, the child development centre;

d. for seminar purposes.

In-patient wards

2.29 The main purpose of an in-patient ward is to provide accommodation and facilities for the assessment, diagnosis, treatment, nursing care and rehabilitation of acutely ill children and young people.

2.30 Children and young people need to be accommodated in accordance with their age, sex and

condition. To facilitate this requirement, it is necessary for:

a. beds/cots to be grouped. Grouping of beds/cots for infants, toddlers, younger school children and teenagers may be appropriate. The provision of separate accommodation for teenagers is particularly desirable;

b. about 50% of the beds/cots to be in single-bed rooms;

c. some single-bed rooms to be capable of accommodating patients with infectious diseases. 'Welfare of Children and Young People in Hospital' welcomes the increasing trend of managing children with infectious diseases in children's wards;

d. provision to be made for the care of seriously ill children and young people who require high dependency care;

e. provision to be made for the immediate care of children and young people who become critically ill until the arrival of the transport team from the regional paediatric intensive-care unit.

2.31 The total number of beds/cots in the in-patient ward(s), and how the beds/ cots are grouped to accommodate the age ranges of patients, will influence whether or not beds/cots can be allocated to specialties. Best utilisation of beds/cots is usually achieved if they are used flexibly. Allocation of beds/cots to specialties should not produce uneconomic utilisation of bed spaces.

2.32 The maximum number of beds/cots in an in-patient ward that can be reasonably supervised by one sister/charge nurse at any one time is twenty. On the other hand, an in-patient ward with 20 beds/cots provides good management scope for a sister/charge nurse and facilitates options for the deployment and training of staff.

2.33 Principal objectives which should be observed in planning in-patient wards include:

for patients:

a. achieving a layout with:
   (i) easy visual contact between patients and staff;
   (ii) maximum observation into and between bed/cot spaces;
   (iii) easy access to bathing, washing and WC facilities from bed/cot spaces and play areas;
   (iv) natural light direct to all patient spaces;
   (v) external views from all bed/cot spaces;

b. the fundamental need to provide:
   (i) a range of rooms where patients can be nursed in beds or cots according to their needs;
   (ii) an adequate number of single-bed rooms to meet clinical requirements;
   (iii) adequate space in all bed/cot areas for parents/carers, siblings, dining, play, recreation, rehabilitation and education, as well as staff, equipment and the storage of personal belongings;
   (iv) adequate space for dining, play, recreation, socialising, rehabilitation, education and storage for toys and clothes, separate from that associated with the bed space;
   (v) auditory and visual privacy, especially when receiving medical and nursing attention;
   (vi) adequate space in order to avoid overcrowding and minimise the risk of cross-infection;

c. the provision of an environment which is:
   (i) safe and secure;
   (ii) as non-clinical and domestic as possible, and welcoming to patients and other family members;
   (iii) as free as possible from noise, especially at night, and free from unpleasant odours;
   (iv) pleasant, calm and bright;

d. the provision of:
   (i) means to summon attention;
   (ii) amenities, including radio and television, an individual bed light and access to a telephone;

for parents/carers and visitors:

a. the provision of:
   (i) space and furniture to enable parents/carers to sit, and play with patients, and for one parent/ carer to sleep with the patient or adjacent to the patient's bed space in all bed rooms;
   (ii) a separate room in or near the in-patient ward where parents/ carers may relax, watch television and make beverages;
   (iii) a separate suite of overnight stay facilities for parents/carers (in adjacent accommodation at dressing-gown distance);
   (iv) a room to which to take parents/carers, who are distressed and for private discussions;
   (v) a room where a mother can express milk in privacy and comfort and a baby food store and preparation room where infant formula feeds can be prepared in a domestic setting;

for medical and nursing staff:

a. the need to provide:
   (i) sufficient space in all bed/cot spaces to observe, care for, examine and treat patients, with adequate room for all the equipment which may be in use;
   (ii) a ward office/staff base as the focal point for administration, communication and automatic data processing;

(iii) offices for junior medical staff and for ward sisters;

(iv) facilities to locate and summon staff in an emergency;

(v) facilities for clinical teaching;

(vi) facilities for confidential interviews;

(vii) facilities for confidential telephone conversations;

(viii) facilities for changing and for the storage of personal items while on duty;

(ix) WC and hand-washing facilities;

b. achieving a layout with:

(i) easy access to all bed/cot spaces, with as many as possible observable from the staff base;

(ii) short walking distances between all rooms;

(iii) sufficient storage spaces for materials and equipment, near to the points of use.

Day-care unit

2.34 The provision of medical and surgical day-care facilities reduces the occasions when it is necessary for a child or young person to be admitted as an in-patient and to stay in hospital overnight. It is expected that the number of children and young people to be treated as day cases, for both medical and surgical conditions, will continue to increase significantly.

2.35 Children and young people may be admitted as day patients for medical investigations and/or treatment, or for surgical procedures. Investigations and/or treatment may be carried out in the day-care unit or in a diagnostic department elsewhere in the hospital. Surgical procedures will normally be carried out in an operating theatre in the operating department or the day-surgery unit. Patients can be:

a. admitted to the day-care unit and prepared there for surgery;

b. transferred in a bed or cot or on a trolley to the anaesthesia room/ operating theatre in the operating department or day-surgery unit for surgery;

c. recover in the post-anaesthesia recovery room in the operating department or day-surgery unit;

d. transferred back to the day-care unit in the comprehensive children's department for pre-discharge recovery and discharge.

Children should not be treated alongside adults.

2.36 As soon as they are sufficiently fit, children and young people will leave the day-care unit with their parents. Occasionally, a child or young person may be considered unfit for discharge and will need to be admitted as an in-patient.

2.37 A core of bed/cot/trolley spaces in the day-care unit should be discrete and dedicated for day-care purposes. The remaining bed/cot/trolley spaces can be conveniently available for use for in-patient purposes on a planned basis on the occasions of seasonal peaks of emergency admissions when all the beds in in-patient wards are occupied.

2.38 Day patients should not mix with acutely ill in-patients.

2.39 Principal objectives which should be observed in planning a day-care unit include provision of accommodation:

- which is separate from the in-patient ward(s);
- with facilities for dealing with the pre-admission, admission, treatment, pre-discharge recovery and discharge of patients, including fast communication with primary and community services, and patients' homes;
- equipped to ensure the clinical safety of patients;
- which is furnished and equipped to provide a cheerful and homely environment for children and young people;
- which recognises that children and young people arriving for elective procedures are generally in good health and require neither a bed, a cot nor a trolley in the early stages of their admission;
- fitted with child-proof fittings, furniture, equipment and stores to reduce the likelihood of danger to active children and young people;
- laid out and with easy access for people with disabilities;
- with facilities for parents/carers, recognising that they will be at least as numerous as the patients and may remain with the patients and help with their care and treatment.

Account should also be taken of relevant objectives noted in paragraph 2.33.

2.40 Project teams may decide that children and young people who require day surgical procedures should not be admitted to the day-care unit in the comprehensive children's department but to a separate day-surgery unit (DSU). An extract from HBN 52, Volume 1 – 'Accommodation for day care – Day surgery unit', 1993, which considers 'Children and day surgery' is reproduced below. Option 4 is the arrangement described in paragraph 2.35.

"Children and day surgery

2.15 *A main principle of the Department of Health report 'Welfare of Children and Young People in Hospital' is that "Children are admitted to hospital only if the care they*

require cannot be as well provided at home, in a day clinic or on a day basis in hospital". The report states that "Day care can make a valuable contribution to family centred health care by reducing the occasions when it is necessary for a child to be admitted overnight in hospital" and advises that "the child is neither admitted nor treated alongside adult patients... the environment is suitably laid out and furnished with easy access for people with disabilities and an area where children can play before and after treatment".

2.16 *'Just for the day', 1991, Caring for children in the health services (CCHS) provides a very full account of issues to be addressed in the management and delivery of day care for children. 'Day surgery: making it happen – Appendix 7' deals specifically with the admission of children to day surgery units.*

2.17 *DSUs should be designed so that carers can accompany child patients for as much as possible of their attendance.*

2.18 *Segregation of child patients and adult patients can be achieved in a number of ways: four options for consideration by project teams are described below. Options 1 and 2 ensure segregation but whether or not they are appropriate for implementation will need to be determined locally, taking account of such factors as the numbers and case mix of children to be admitted.*

Option 1 – a dedicated children's unit

2.19 *A dedicated children's unit is the preferred option of the CCHS report 'Just for the day'. For many hospitals, however, a dedicated children's unit may not be viable.*

Option 2 – a dedicated children's session

2.20 *A children's session may be arranged in an otherwise adult DSU and the unit dedicated for use by children only. For this option to be viable, a sufficient number of children will need to be treated during sessions arranged on a periodic or occasional basis, as appropriate. Areas attended by children and their carers should be temporarily converted to provide an appropriate environment.*

Option 3 – concurrent children's and adults' sessions

2.21 *Concurrent children's and adults' sessions need to be organised with sensitivity. Visual separation of child patients and adult patients should be provided and auditory separation achieved wherever possible. Communal areas for patients will need to be carefully divided: this implies the use of movable screens or other appropriate forms of separation within main waiting, post-anaesthesia recovery and pre-discharge recovery areas.*

Option 4 – limited use of unit by children

2.22 *This option involves use of the unit by children for surgery and post-anaesthesia recovery only. Children are admitted to the day care ward of the children's department and returned there, following surgery, for pre-discharge recovery and discharge. The DSU would need facilities to accommodate children on arrival and prior to return, and to be connected to the hospital street.*

2.23 *Medical opinion of Option 4 is polarised. It is pointed out that day surgery for adults should be provided in an environment which is domestic, friendly and as non-clinical as possible and that it is at least equally as important to achieve this objective for children. On this basis, it is considered unacceptable to move children between the children's department and the DSU. The alternative point of view demands total visual and auditory separation of child patients and adult patients in the DSU and foresees difficulties in achieving this in Option 3: Option 4, therefore, is preferred to Option 3."*

Functional units

2.41 The functional units of the four functional parts of a comprehensive children's department are:

a. out-patients suite – the combined consulting/ examination room;

b. child development centre – the centre;

c. in-patient ward – 20 bed in-patient ward;

d. day-care unit – the bed/cot/trolley space.

Sizing a comprehensive children's department

General

2.42 In determining the size of a comprehensive children's department, it is important that the functional parts selected and the size of those functional parts are based on local needs. Factors to be considered include:

- demographic trends in the child population;
- epidemiological information on child morbidity;
- epidemiological information on economic, social and psychological factors bearing on child health;
- any indicators of unmet need in respect of acute or chronic illness;
- information from research and other sources on the efficiency of alternative treatments and the effectiveness of alternative forms of provision;
- the emphasis on reducing overnight hospital admissions for children and young people through

increased use of community, out-patient and day care and supporting the provision of home care;

- shorter length of in-patient stay as a consequence of:
  - (i) expansion of day-care services;
  - (ii) changing nursing practices in hospitals. Nurses are now much more involved in teaching and supporting parents as prime care givers rather than providing the care themselves, thereby facilitating earlier discharge to home;
  - (iii) more care being provided at home as a result of growth in demand for home care and technological developments which facilitate home care.

2.43 The need to make a careful and accurate assessment of the amount of accommodation required cannot be overstressed. Providing too much accommodation can be as serious as providing too little, with scarce capital and revenue resources being diverted from more pressing needs.

Out-patients suite

2.44 A method for calculating the number of combined consulting/examination rooms required in an out-patients suite, together with a worked example, is included in the Appendix of HBN 12 – 'Out-patients department', 1990.

Child development centre

2.45 Subject to local policy and planning objectives, it is considered that the child development centre described in this HBN will be appropriate for inclusion in a comprehensive children's department in most acute general hospitals.

In-patient ward

2.46 The method for calculating the number of beds required in an adult acute ward, together with the worked example, included in Appendix 2 of HBN 4 – 'Adult acute wards', 1990, can be used to calculate the number of beds/cots required in in-patient wards for children and young people. Separate calculations will need to be made for all specialties planning to treat children and young people. Account will need to be taken of children and young people with learning difficulties previously accommodated in hospitals for people with a mental handicap, including for periods of physical illness, who are now cared for in the community. Reference should also be made to consideration of the subject of bed numbers in 'Children First: A Study of Hospital Services', Audit Commission, 1993, and the 'Purchasers Guide to Paediatric Services', British Paediatric Association (in preparation).

2.47 In-patient ward accommodation will be the largest functional part of the comprehensive children's department and particular care should be given to identifying the number of beds required (see paragraph 2.42).

Day-care unit

2.48 The method for calculating the number of beds required in an in-patient ward (see paragraph 2.46) can be modified and used to calculate the number of bed/cot/trolley spaces required in a day-care unit.

2.49 Planned values will need to be identified for:

a. the number of consultant episodes per year;

b. the average length of consultant episode. This will usually be a half day or a full day;

c. the number of days per year each bed/cot/ trolley space is to be available.

2.50 The formula should be amended so that:

$$\text{Number of beds/cots/trolley spaces} = \frac{a \times b}{c}$$

Functional relationships

2.51 This HBN describes a comprehensive children's department in an acute general hospital. Reference is made below to the functional relationships of the comprehensive children's department with other departments in an acute general hospital (see Figure 1).

Clinical support services

2.52 Patients, parents, carers and staff from the comprehensive children's department are likely to attend:

a. the radiology department;

b. specialist accommodation in the general out-patients department, for example, for audiology, ophthalmology and removal of plaster of paris splints;

c. operating theatres in the main operating department (in-patients and possibly day patients) and possibly the day-surgery unit;

d. the rehabilitation department;

e. the neonatal unit.

Staff from the comprehensive children's department accompanying patients and parents/carers sometimes may need to provide specialist advice on the care and treatment of children and young people.

2.53 Patients and parents/carers will be referred from the accident and emergency department. Paediatric nurses will need to be deployed in an accident and emergency department serving children.

Non-clinical support services

2.54 Departments which provide a non-clinical support service to the comprehensive children's department will include:

- catering;
- domestic services;
- health records;
- management/administration;
- pathology;
- pharmacy;
- sterile services.

Education and training

2.55 A seminar room is required where education and training sessions can be held for staff working in the department and where case conferences can be held. The seminar room may also be used by visiting students.

2.56 Additional space should be provided for the teaching of undergraduate medical students, if necessary. Reference should be made to the Department's letter DS 65/74 about teaching hospital space requirements, issued on 22 March 1974, and letter DS 86/74 dated 27 March 1974. (In Wales, reference should be made to letter HSD 3/57/1 dated 29 April 1974.) Teaching requiring special facilities should take place in a postgraduate medical centre, or in a hospital education centre.

2.57 Teaching may also take place in appropriate other spaces in the comprehensive children's department in addition to accommodation provided specifically for education and training.

Information management and technology

2.58 Information management and technology (IM&T) is fundamental to the successful operation of a comprehensive children's department. Systems selected

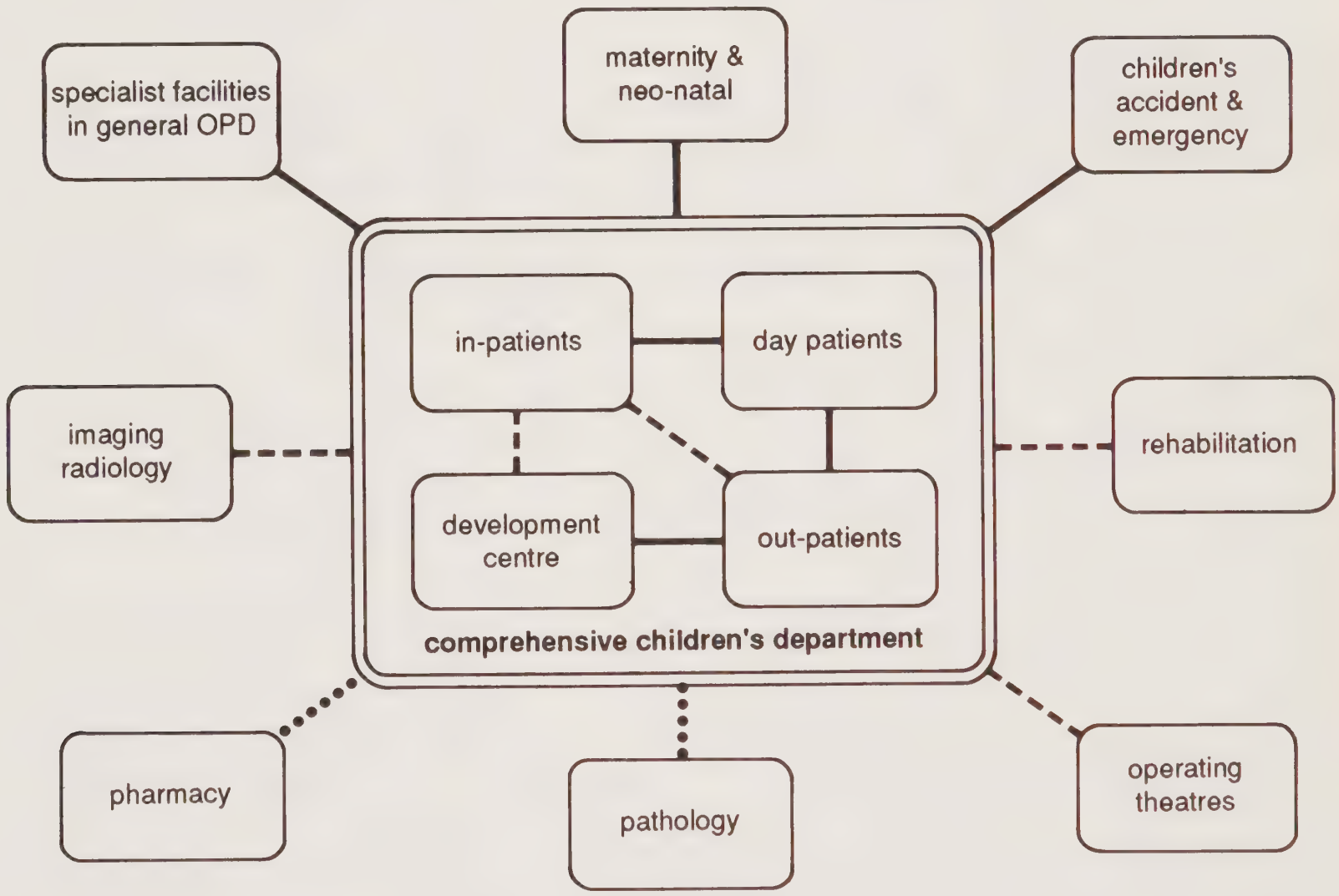


Figure 1 Relationships within hospital

should offer a wide range of facilities, and be consistent with local and NHS IM&T strategies.

2.59 Figure 2 illustrates a comprehensive IM&T network for a comprehensive children's department: a glossary which explains the meaning of the terms used in the figure is included as Appendix 3. However, choice of systems and matters such as the location of computer terminals, which functions to include on the system, and access levels to information, should be determined locally. Examples of data handling needs which would be met by installation of a network such as that shown on Figure 2 include:

- within the department:
  - (i) maintaining a patient record system;
  - (ii) maintaining an appointment system;
  - (iii) operating a patient management system;
  - (iv) providing management information, including clinical audit;
  - (v) managing materials;
  - (vi) managing statistical information, including feedback from patients, general practitioners and district nurses;
- with other hospital departments:
  - (i) making appointments with other departments, for example, the radiology department, and from other departments, for example, the accident and emergency department;
  - (ii) transmitting urgent results from the pathology department;
  - (iii) ordering meals;
- with patients:
  - (i) confirming appointments;
  - (ii) final checking that patients still plan to attend;
- with general medical practitioner:
  - (i) advising results of, say, day surgery, and requesting follow-up visit;
  - (ii) issuing discharge letters;
- with district nurse, requesting visit before and/or after attendance at the department.

2.60 Visual display terminals (VDTs) and printers linked to computers are now widely used in hospitals. Project teams should:

a. consider the computer needs of the department;

b. appraise themselves of the state of technological developments;

c. check that proposals conform with local computing policies.

2.61 Sufficient space should be provided at the design stage to meet the anticipated need for special power supplies, modems, VDTs, printers and associated software, stationery, and wireways for data transmission cabling.

2.62 Matters of concern include:

- space – computer workstations must have sufficient and convenient space for appropriate equipment;
- visibility – since the brightness of the text displayed on the screen of a VDT cannot exceed a certain limit, special attention must be given to the ambient lighting to ensure that the contents of the screen are legible;
- noise – while much has been done to reduce the noise of printers by improved design of the moving parts and of acoustic hoods, no printer is silent. For some environments, expenditure on quieter printers, or on means of quietening noisy printers, can be justified. Alternatively, printers may be located in a room where noise is not an issue;
- confidentiality – the screen of a VDT should be sited so that the displayed text is not visible to members of the public;
- security – provision should be made for the security of data and devices.

Department management and administration

2.63 As a general rule, office accommodation should be provided in the comprehensive children's department for staff for whom it is their only or main place of work.

2.64 Office workstations may be required:

a. for the clinical directorate or manager(s);

b. for medical staff, including consultant paediatricians and junior doctors;

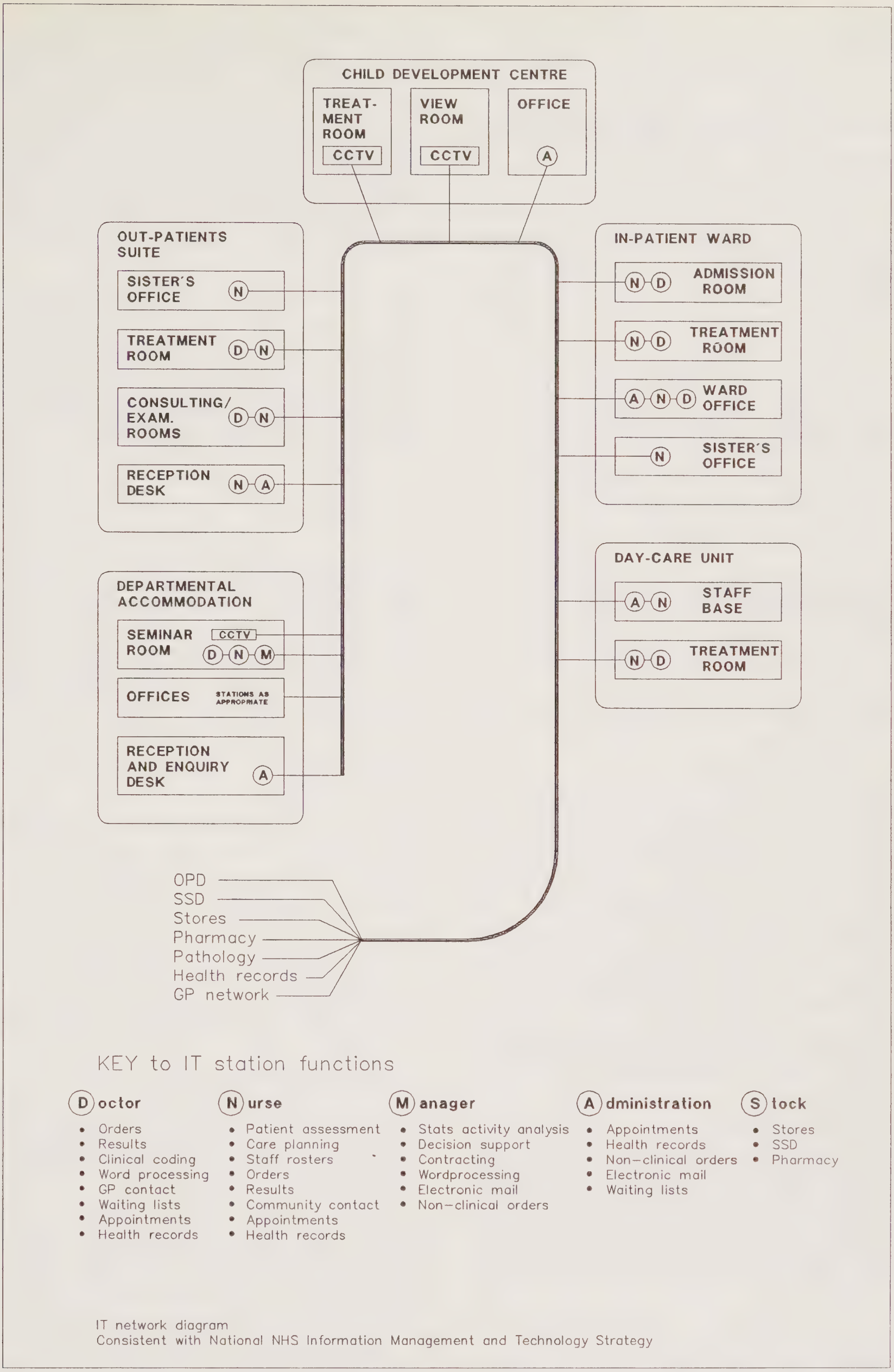
c. for nursing staff, including senior nurses and sisters/charge nurses responsible for the out-patient suite, the in-patient ward(s), the day-care unit and for staff working mainly in the community, for example paediatric liaison health visitor;

d. for other staff, such as medical secretaries, social worker, teaching staff, remedial therapists and play specialists.

2.65 It is assumed that senior management and certain administrative services will be provided to the department on a whole hospital basis.

Health records services

2.66 It is assumed that the health records department in the hospital will be responsible for the provision of a



IT network diagram
Consistent with National NHS Information Management and Technology Strategy

Figure 2

health records service to the comprehensive children's department, including the safe custody of case notes.

Materials handling: supply, storage and disposal

2.67 A comprehensive children's department has special storage requirements over and above the requirements of, for example, an adult acute ward. Additional space is required for:

a. disposable nappies;

b. clothing. It is expected that most patients will wear their own clothing but a back-up stock is required;

c. toys. Toys will need to be available for different age groups and for different types of play;

d. clinical and other equipment, such as cots and beds. Special paediatric clinical equipment will be in use;

e. Christmas and other seasonal decorations, etc;

f. teaching equipment and supplies. It is necessary to hold a wide range of learning materials.

2.68 Project teams should give careful consideration to supply, storage and disposal systems. The quantity and distribution of storage space can only be specified in terms of known policies.

2.69 Project teams should consider:

a. whole hospital materials handling: supplies, storage and disposal policies. The frequency of deliveries, the amount of storage space required in the department and the delivery and storage policy of the supplying department, are inter-related. The lower the frequency of delivery, the greater the capital outlay on working stocks. This is particularly significant in respect of items reprocessed by the sterile services department (SSD);

b. the types of item supplied, for example, sterile supplies, office supplies, catering supplies and clean laundry;

c. delivery and collection points;

d. the volume and location of storage spaces (including spaces where items are held awaiting collection for reprocessing or disposal);

e. specialised storage requirements, for example, for pharmaceutical supplies (especially Controlled Drugs).

2.70 Control of stock, which may require computer support, increases efficiency and can effect appreciable reductions in costs. The value of a departmental stores management system will be enhanced if it can be linked to an existing hospital materials handling system.

2.71 Organising an efficient and economical system for supply, storage and disposal is demanding and complex. Systems and timetables for ordering supplies, for delivery and for disposal should be devised and agreed with appropriate organisations external to the hospital and with the managers of relevant hospital departments, including hospital stores, SSD, pharmacy, laundry, catering and portering services. Good working relationships and communications with other hospital departments are of fundamental importance.

2.72 Disposal of pressurised containers requires special attention – see SAB(88)79 – 'LPG aerosol containers: Risks arising from storage, use and disposal'. Specially constructed containers (see BS7320:1990) should be used for "sharps", particularly needles. Use of sharps containers minimises the risk of injury to staff, particularly portering staff handling waste for incineration.

Sterile services

2.73 An SSD may provide a service to the comprehensive children's department which includes cleaning and disinfecting specific items of medical equipment and, when agreed locally, the scheduled servicing needs of the medical equipment being cleaned and disinfected in the SSD. Facilities will be required for automatically emptying, cleaning and disinfecting suction bottles.

Staff change

2.74 Staff who wear uniforms may change from outdoor clothes into hospital or department uniforms in changing accommodation located within the department, or elsewhere in the hospital, as determined by local policy.

2.75 If changing accommodation elsewhere is used, it will be necessary to provide within the department:

a. lockers for storing small items of personal belongings securely;

b. toilet facilities.

2.76 This HBN assumes that all staff who need to change will do so in the department, and describes changing accommodation, including staff change/locker rooms, showers and WCs for use by staff.

2.77 It is essential that project teams assess as accurately as possible the expected local usage of staff change/locker rooms. The following issues require particular attention:

a. the total number of users. Account should be taken of part-time as well as full-time staff;

b. the greatest number of users present at one time;

c. the number of "permanent" users and of "occasional" users;

d. the proportion of the total contributed by each sex;

e. the policy for the allocation of lockers, that is, personal or shared use.

2.78 Experience suggests that it is advisable for staff permanently employed in the department to be assigned personal lockers. If training courses are regularly held in the department, some lockers should be reserved for students.

Domestic services

2.79 A domestic services manager (or equivalent if the service is contracted out) will be responsible for organising domestic cleaning services in the department. Most of the work will be carried out by domestic services staff based there. It is assumed that some work will be carried out by a whole hospital team, in-patient ward(s) excepted, when the department is not in use.

2.80 Accommodation is required in the department where cleaning equipment can be stored and cleaned, and as a base for domestic services staff. The size and content of the space will be determined by the scope and extent of the services provided from it, as determined by the whole hospital policy. The type and number of items of equipment and materials to be stored will depend upon the finishes provided, the number and deployment of domestic services staff, and the frequency of cleaning.

Catering services

2.81 This HBN assumes that:

a. main meals will be prepared and most washing-up will be carried out in a central kitchen;

b. for in-patients, main meals will be delivered by trolley from the central kitchen but snacks and beverages will be prepared on the in-patient ward;

c. for day patients, light refreshments, such as sandwiches or toast, and beverages, will be provided in the day-care unit for consumption during the recovery period. Project teams should decide if the service provided to patients should be extended to escorts;

d. most parents/carers will use facilities provided for visitors on a whole hospital basis for main meals, snacks and beverages. Parents/carers remaining on an in-patient ward overnight should be able to use facilities on the in-patient ward for the preparation of snacks and beverages at times when the central dining room or snack bar are closed;

e. staff will attend the central staff dining room for main meals, snacks and beverages;

f. baby food storage and preparation facilities will be provided on an in-patient ward.

2.82 Cooking, transport and service methods for main meals for in-patients vary and, therefore, each in-patient ward must have appropriate facilities for serving meals to patients.

2.83 Food service methods include:

a. central tray service, with meals assembled to the individual patient's requirements and delivered to patients in an unheated tray trolley. Meals may be kept hot by means of a heat-retaining base under each plate or insulator. This system is not recommended for use with children and young people;

b. bulk food service. Bulk food is plated at ward level and can be appropriately apportioned for patients: it is, therefore, the most suitable system for children and young people.

2.84 A bulk food service may be provided by conventional or cook-chill food preparation methods.

2.85 The regeneration of cook-chill food may be carried out in the heating compartment of the transport trolley or in a static regeneration unit sited in the ward pantry or other enclosed space provided for this purpose.

2.86 Transport trolleys are bulky. If regeneration is carried out in the transport trolley, adequate space should be allowed for manoeuvring and parking the trolley and for activities associated with the regeneration process, for example, monitoring the temperature. An adequate electricity supply should be provided for transport trolleys in which cook-chill food is regenerated.

2.87 Facilities will be required in the child development centre, the in-patient ward and the day-care unit for the preparation of light refreshments, snacks and beverages, including storage for dry goods, milk and a limited amount of crockery and cutlery, and for washing-up. In the in-patient ward, it is assumed that patients' water jugs and glasses will be washed, dried and refilled in the ward pantry.

3.0 General functional and design requirements

Introduction

3.1 This chapter provides planning and design guidance for a comprehensive children's department related to the service objectives outlined in Chapter 2. Additional guidance which is common to all health buildings is discussed in Chapter 5.

General design considerations

3.2 A comprehensive children's department should be planned and designed to provide patients and parents/carers with high-quality facilities that will be easy for staff to manage and operate.

3.3 The design should help to assure patients and parents/carers that they are receiving a first-class service. To this end, particular attention should be paid to the visual aspects of the department as well as functional and environmental needs.

Location

3.4 This HBN describes a comprehensive children's department located on the site of, and integrated into, an acute general hospital. A decision will need to be taken locally on the location of a child development centre. The HBN has been prepared, on the basis that the centre may be located with the comprehensive children's department or in the community, subject to local circumstances and operational policies.

3.5 An important location requirement of a comprehensive children's department is the need for easy access by patients and parents/carers, staff and materials. Patients and parents/carers should be able to move directly into and out of the department from the outside without entering other parts of the hospital complex and needing to use lifts and corridors.

3.6 The comprehensive children's department should be sited at ground level on a single floor and have its own external departmental entrance off the hospital road system for use by patients, parents/ carers and visitors.

3.7 A case could be made for providing some of the accommodation on an upper level on the grounds that:

a. post-operative travel by lift is obviated if operating theatres are on the same upper level;

b. an upper-level location may provide an additional element of security.

Consideration would need to be given to the provision of additional play space in lieu of an external area and special attention paid to the provision of means of escape in case of fire.

3.8 However, good reasons for locating each functional part at ground level and for locating the functional parts close to each other, are noted in the section of this chapter entitled 'Intradepartmental relationships' (paragraph 3.15).

Interdepartmental relationships

3.9 Project teams will need to consider carefully the location relationships of the comprehensive children's department with other departments. Children should not be moved around the hospital unnecessarily.

3.10 It is likely that patients will move between the comprehensive children's department and the:

a. radiology department;

b. out-patients department;

c. operating department;

d. day-surgery unit;

e. rehabilitation department;

f. accident and emergency department.

Distances should be as short as possible. Ease of access is also important.

3.11 Project teams should decide which departments need to be closest. Issues to consider include:

- the clinical condition of patients being moved. On this basis, priority may be given to the operating department, the day-surgery unit and the accident and emergency department;
- the volume of patients being moved.

3.12 Staff and materials will need to move between the comprehensive children's department and non-clinical support service departments (see paragraph 2.54). There are no critical connections that demand that the comprehensive children's department is located immediately adjacent to any of them, but short logistical links and ease of access will aid efficiency.

3.13 Provision of a secondary entrance from the main hospital circulation route may facilitate ease of access to and from other parts of the hospital for patients, parents/carers, staff and materials.

3.14 Consideration should also be given to the need for:

a. medical staff to be able to attend the neonatal unit;

b. staff and parents/carers to collect drugs from the pharmacy.

Intradepartmental relationships

General

3.15 The functional parts of a comprehensive children's department should be related to each other so as to facilitate shared use of appropriate spaces (including external play areas) and movement of staff (see Figure 3).

3.16 The departmental entrance should be the main entrance to the comprehensive children's department and should be controlled. Patients and parents/carers should have access from the departmental entrance to each functional part without having to pass through other functional parts. There should be access from the secondary entrance from the main hospital circulation route to each functional part without having to pass through other functional parts.

3.17 Access and circulation routes to and within the comprehensive children's department should be as direct as possible and clearly signposted to help prevent patients and parents/carers losing their way.

Out-patients suite

3.18 The out-patients suite should be close to the departmental entrance as:

a. a large number of patients and parents/carers may attend a clinic session;

b. many patients may have a physical, visual or auditory impairment.

3.19 During clinic sessions, there will be a constant flow of patients and parents/carers between the departmental entrance, the entrance to the out-patients suite, clinic reception and waiting areas, consulting/examination rooms and treatment rooms. Careful consideration should be given to traffic flow.

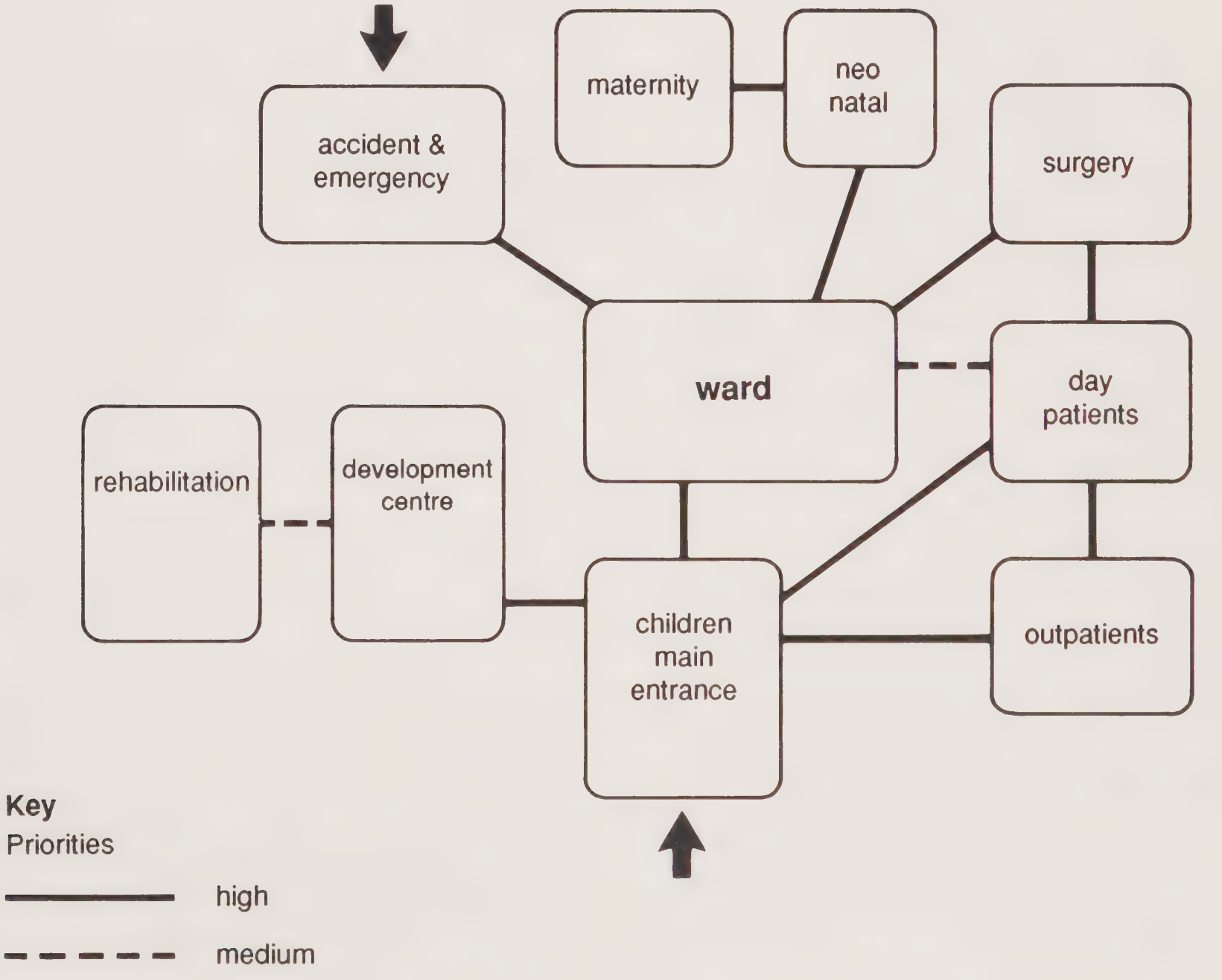


Figure 3 Flow of patients in comprehensive children's department

Child development centre

3.20 Patients who attend a child development centre may have a physical, visual or auditory impairment but, on the basis that the maximum number attending a session will be considerably less than the number attending some clinic sessions in the out-patients suite, it is not as important for the child development centre to be close to the departmental entrance.

3.21 Patients/carers will move from the departmental entrance to the entrance to the child development centre and report to reception where they may be asked to go first to the waiting/play area prior to proceeding to a consulting/examination room and/or an assessment/observation/remedial therapy room.

3.22 A child development centre provided as part of a comprehensive children's department should be located so that use can be made of the following spaces in the out-patients suite:

a. reception desk;

b. weighing and measuring room;

c. consulting/examination rooms;

d. treatment room;

e. baby feeding room;

f. nappy changing room;

g. clean utility room;

h. dirty utility room;

j. cleaners' room.

3.23 A child development centre which is not associated with an out-patient suite in a comprehensive children's department will require the spaces described in paragraphs 4.65 to 4.80 in addition to those referred to in paragraph 3.22 (and described in Chapter 4). If it is attached to appropriate alternative accommodation, sharing the use of some spaces may be acceptable.

In-patient wards

3.24 The route from the departmental entrance to the patient's point of destination in an in-patient ward should be as short as possible. Only one entrance for routine use should be provided to an in-patient ward.

3.25 A comprehensive children's department may include more than one in-patient ward. In such cases:

a. the in-patient wards should be adjacent to each other to facilitate sharing the use of appropriate spaces, for example, doctors' offices, cleaners' room and disposal room;

b. the bed/cot content of in-patient wards should be determined in accordance with guidance included in paragraphs 2.42, 2.43, 2.46 and 2.47. Noting that 20 beds/cots in an in-patient ward is generally considered to be maximum (paragraph 2.32), and taking account of increasing carer involvement and presence on in-patient wards, it may be appropriate for the most active in-patient ward to have fewer beds. Project teams will need to examine running costs but 16 beds in an in-patient ward is probably the lowest number that can be provided and continue to be economically viable.

3.26 Chapter 4 describes bed/cot spaces accommodated in single-bed rooms and in multi-bed rooms with two beds and four beds. Sizes of bed rooms should be selected by project teams in accordance with local needs, bearing in mind that about 50% should be single-bed rooms (paragraph 2.30 b).

3.27 A ward with 20 beds may consist of:

a. ten single-bed rooms;

b. one or two multi-bed rooms with four beds each;

c. two to four multi-bed rooms with two beds.

To facilitate flexibility of use, each room should have en-suite sanitary facilities.

3.28 Two single-bed rooms should be designed and permanently designated as single-bed rooms. The remaining single-bed rooms should include sliding doors or folding partitions so that they can easily be converted into multi-bed rooms with two beds. Two of the multi-bed rooms with two beds and an associated day area should be designated for use by teenagers and located close to other accommodation designated for use by teenagers. It is important in a comprehensive children's department with only one ward to maintain flexibility of use of bed spaces: there is much more scope for designating certain parts of an in-patient ward for a particular age group in a department with two or more in-patient wards.

3.29 Teenagers of the opposite sex may be accommodated in the same in-patient ward but should not share the same multi-bed room or the same sanitary facilities.

3.30 It is essential that staff can observe patients and that patients can see recognisable staff in order to feel reassured and safe. The staff base should be at the centre of bed and day areas, with utility and other support spaces as near as possible to bed spaces likely to accommodate high dependency patients. The entrance and all exits should be visible to staff in the interests of security and to help prevent children from straying (see Figure 4).

3.31 Consideration should be given to the possibility that bed/cot spaces in in-patient wards may need to be converted to bed/cot/trolley spaces for day care in response to the trend of treating fewer in-patients and more day-patients. See also paragraph 3.34.

Day-care unit

3.32 Patients who attend a day-care unit may have a physical, visual or auditory impairment but, on the basis that the maximum number attending a session will be considerably less than the number attending some clinic sessions in the out-patients suite, it is not as important for the day-care unit to be close to the departmental entrance.

3.33 Patients and parents/carers will move from the departmental entrance to the entrance to the day-care unit and report to reception where they may be asked to go first to the waiting/play area prior to being allocated a bed/cot/trolley space. After the patient has changed in a bed/cot/trolley space, patients/carers may move to the treatment room in the unit or to a treatment facility, most likely an operating theatre, elsewhere in the hospital. After treatment, patients will be returned to their bed/cot/trolley space to complete recovery prior to discharge. Occasionally, a patient may be considered unfit for discharge and need to be admitted.

3.34 The day-care unit should be separate from, but adjacent to, an in-patient ward in order to facilitate:

a. provision of a core of bed/cot/trolley spaces which are discrete and dedicated for day-care purposes (see paragraph 2.37);

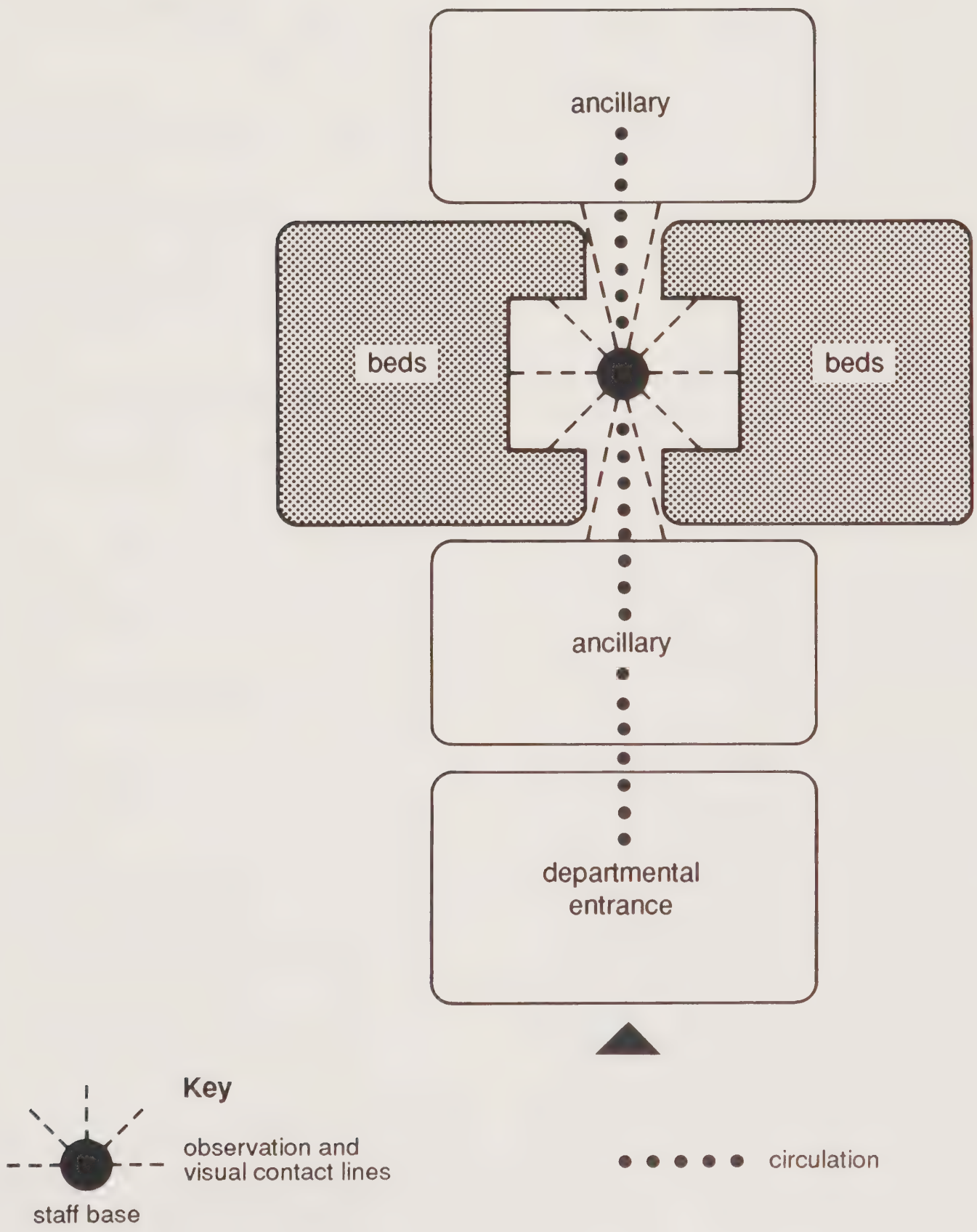


Figure 4 Clustering of areas within in-patient ward

b. provision of bed/cot/trolley spaces which can be used exceptionally during seasonal peaks of demand for in-patient purposes (see paragraph 2.37);

c. possible future conversion of bed/cot spaces in in-patient wards to bed/cot/trolley spaces for day care (see paragraph 3.31).

3.35 Chapter 4 describes bed/cot/trolley spaces accommodated in single-bed rooms and in multi-bed rooms with two and four beds/cots/trolleys. Sizes of bed rooms should be selected by project teams in accordance with local needs.

3.36 The number of bed/cot/trolley spaces in a day-care unit should be calculated as indicated in paragraphs 2.42 and 2.48 to 2.50. A unit with eight beds may consist of:

a. two single-bed rooms;

b. one multi-bed room with four beds;

c. one multi-bed room with two beds.

To facilitate flexibility of use, each room should have en-suite sanitary facilities.

Planning considerations

Access and car parking

3.37 Patients and parents/carers may arrive by ambulance, by car, by public transport or on foot: the majority will make their own arrangements and many will travel by car. Patients and parents/carers should be able to locate the comprehensive children's department easily from the main entrance to the hospital site. Separate setting-down points should be provided close to the entrance to the department for patients and parents/carers arriving by ambulance and by car. Special attention should be paid to the provision of car parking spaces for disabled people (see HBN 45 – 'External works for health buildings').

3.38 Car-parking facilities should be provided for patients/carers attending the comprehensive children's department. It is helpful if patients can be set down prior to attendance/admission and collected following attendance/admission at a point close to the entrance to the department. This objective can be achieved if the car-parking facilities are located:

a. close to the department, and an adequate number of spaces can be reserved for use by patients/carers; or

b. remote from the department, but adequate space is provided near the entrance where cars can be parked temporarily while parents/carers attend to patients.

Facilities for parents/carers

3.39 Provision of facilities for parents/carers and siblings in in-patient wards merits special reference in this chapter. Descriptions of facilities for parents/carers in the out-patients suite, child development centre and day-care unit are included in the descriptions of individual spaces in Chapter 4.

3.40 Facilities required for parents/carers and siblings, as appropriate, in in-patient wards include:

a. space adjacent to each bed space, including a proportion with space for overnight stay;

b. a sitting room;

c. a laundry room;

d. a beverage bay;

e. overnight stay accommodation, with bed rooms and sanitary facilities at dressing-gown distance from the in-patient ward(s);

f. a room for use of breast pump, where a mother can sit in privacy and express milk for her baby.

3.41 'Parents staying overnight in hospital with their children', published by Caring for children in the Health Service recommends that beds should be provided for one parent of child patients to stay overnight in the following proportions:

a. for 100% of under-5-year-olds;

b. for 75% of 5- to 7-year-olds;

c. for 50% of 8- to 11-year-olds;

d. for 25% of 12- to 16-year-olds.

3.42 This HBN includes overnight stay accommodation for parents/carers:

a. with space for a bed next to the patient in all bed spaces;

b. at dressing-gown distance. The accommodation consists of:

(i) a sitting-room;

(ii) bed rooms with two single beds;

(iii) sanitary facilities with a WC, a shower and a hand-wash basin;

(iv) easy access to a laundry room and beverage bay.

Privacy

3.43 Children and young people of both sexes will be accommodated in the comprehensive children's department. In each functional component of the department, it is necessary for patients to be able to preserve their privacy and personal dignity.

3.44 Privacy is particularly important for teenagers, especially where boys and girls are nursed or treated in adjacent areas or share certain accommodation and circulation spaces. In in-patient wards, the single and multi-bed rooms with two beds described in this HBN are most appropriate. Patients will need their own "space" and a place to keep personal belongings. Privacy in sanitary facilities must be provided.

Safety

3.45 The safety of children and young people must be considered in the siting, design and equipping of all parts of a hospital to which they have access. Many accidents occur because of human error but can be avoided or their effects mitigated by taking appropriate safety measures. At the same time, safety measures should not cause avoidable inconvenience nor impair efficiency. In patient areas, unobstructed views are the best deterrent to mishap.

3.46 Appropriate safety measures should make it as difficult as possible, if not impossible, for young children to enter accommodation which might contain equipment or material likely to be harmful to them. Such accommodation and items of possible danger include:

- kitchen and beverage areas where there are cookers, hot-plates and heated food trolleys;
- utility rooms, cleaners' rooms, stores and other areas where drugs, lotions or cleaning fluids may be kept (disinfectants and cleaning fluids must be treated as poisons and kept in locked cupboards);
- disposal areas where potentially infected rubbish is held;
- treatment rooms and other areas where medical or surgical equipment may be kept;
- doors and windows;
- low-level engineering terminals;
- lifts and paternosters.

3.47 Consideration also needs to be given to:

a. the possibility of limbs or heads being trapped in fittings and furniture;

b. hazards from lift shafts, stairwells and fixed equipment;

c. danger from broken glass and deep water;

d. interference by outsiders;

e. young children straying from the department.

3.48 Safety glass should be used in all partitions and doors. Windows should be fitted with restrictor devices. Special care should be taken with regard to windows overlooking an outside play area: children playing outside might be injured by running into the projecting part of the window.

3.49 Child-proof safety measures should be taken in respect of:

a. electrical socket-outlets;

b. heaters;

c. electric fans;

d. piped gases;

e. hot and cold water supplies. Child-proof taps and controlled hot water temperatures are required.

3.50 Good lighting and uncluttered floors will help promote safety.

3.51 Consideration should also be given to staff safety. Back injury related to patient handling is a major problem which causes suffering and, ultimately, the loss of staff who leave the Health Service with permanent disability. In most old, and many newer, buildings, there is insufficient space for the safe handling of patients. Spaces in rooms, corridors and door openings should be large enough to permit effective use of mobile hoists and other aids.

Security

3.52 Doors to rooms which should not be entered by young children should be fitted with high-level latches. Door control systems should be provided to entrance/exit doors to the functional parts of the comprehensive children's department, as appropriate. Various types of system are available, including those:

- operated by a "swipe" card;
- providing "hands-free" access control;
- operated from the staff base. An audio-speech facility is required between the entry door and the staff base for identification purposes.

Door control systems should be capable of manual or automatic release on initiation of the fire alarm system.

3.53 The problem of thefts of NHS property and staff and patients' valuables should be addressed. The risk to patients can be minimised by encouraging them not to bring valuables into the hospital. A security system needs to be provided for NHS property and staff, patient and parent/carer valuables.

3.54 A well-managed and designed department with a pleasant ambience will help to reduce tension and latent security risks. An overt introduction of security grilles, etc may well be counter-productive.

3.55 The project team should discuss security with the officer-in-charge of the local Police Crime Prevention

Department and the hospital or district security officer or adviser at an early stage in the design of the building. Fire and security officers should be consulted concurrently because **the demands of fire safety and security may sometimes conflict.** The attention of planners is drawn to NHS Management Executive circular HSG (92)22 (in Wales, WHC (92)86) about security and the revised NHS Security Manual to which it refers.

3.56 Where violent incidents are foreseeable, employers have a duty under Section 2 of the Health and Safety at Work etc Act to identify the nature and extent of the risk and to devise measures which would provide a safe workplace and a safe system of work. Such measures should reflect the guidance given in the Health Service Advisory Committee report 'Violence to staff in the health service', issued in 1987.

3.57 The security policy for individual departments should be compatible with that for the whole hospital.

3.58 The risk of vandalism must be assessed locally: it is an issue that is affected by the location of a hospital and the location of a department within a hospital. Designers should avoid placing easily-damaged targets for vandalism on buildings that are not used during the evening or at weekends and not subject to frequent scrutiny by staff or passers-by.

Environment and design

General

3.59 Designers should create an environment in the comprehensive children's department that will help patients feel at ease, be conducive to efficient working, and contribute to staff morale. Children and young people should feel reassured and stimulated: in addition to being ill, they may be suffering from the effects of separation from home and family.

3.60 Abundant indoor planting and external landscaping are of special value. Imaginative use of floor and wall finishes, colour and lighting will help to produce a warm and friendly atmosphere in a comprehensive children's department.

3.61 The design process should include the choice of well-designed furniture and fittings and co-ordination of floor and wall finishes and colour. The selection and positioning of some fittings and furniture will need to take account of the small size and reach of some of the patients. Fittings and furniture with sharp corners should be avoided.

Courtyards

3.62 Courtyards that are appropriately landscaped, equipped and accessible from internal spaces, such as play areas/rooms, can be used for outdoor play. A courtyard may be converted into an outdoor room or atrium by partial or fully glazed roofing.

3.63 Courtyards enable more rooms to receive natural daylight and ventilation, and provide an outlook which can compensate for the lack of longer views. Suitable layout and planting can help to preserve privacy in surrounding rooms. Access for maintenance should be from a corridor so that patients and staff are not disturbed.

3.64 Reference should be made to HBN 45 – 'External works for health buildings' (1992) for more detailed guidance on this subject.

Internal rooms

3.65 Internal rooms may contribute to economy in planning. If, however, additional artificial lighting and ventilation are required, both capital and running costs are likely to be increased.

3.66 Use of internal rooms should be limited to activities which:

a. demand a controlled environment; or

b. are carried out intermittently by different individuals.

3.67 Rooms that are likely to be occupied for any length of time by a patient, a parent/carer or a member of staff should have natural light and natural ventilation.

Corridors

3.68 Corridors can help to create a welcoming environment in a hospital: they should not be long and uninteresting. Corridor design can be improved by:

a. reducing the length;

b. introducing changes in shape by inclusion of waiting spaces and lobbies;

c. introducing daylight;

d. providing views of outside areas such as landscaped courtyards;

e. varying the colours of walls;

f. judicious use of works of art (see paragraphs 3.75 to 3.77).

Natural and artificial lighting

3.69 Sunlight enhances colour and shape and helps to make a room bright and cheerful. Correct orientation, careful window design (with low sills), a minimum of solid walls, reflecting surfaces, and glazed partitions will help to transmit and disperse daylight through the department. However, excessive sunlight, glare and solar heat can be dangerous and cause severe discomfort, particularly to

patients in beds/cots: it can be dangerous if the sun shines directly on incubators. These harmful effects can be dealt with by architectural detailing of window shape and depth of reveals as well as by installing external and internal blinds and curtains.

3.70 Wherever possible, spaces to be occupied by patients, parents/carers or staff should have natural daylight with an outside view.

3.71 Artificial lighting, as well as providing levels of illumination to suit activities, can make an important contribution to interior design. Designers should develop a lighting scheme that will help to promote a high-quality image of the comprehensive children's department and a non-clinical, soft environment. Use of indirect lighting in public and patient areas will assist.

3.72 Artificial lighting provided in spaces occupied by patients should enable changes to a patient's skin tone and colour to be clearly defined and easily identified (see paragraph 6.63).

3.73 Luminaires should not be mounted on ceilings immediately above positions where conscious patients lie on a bed, cot or trolley: alternative indirect luminaires should be selected.

3.74 Task lighting should be of the required intensity with low-contrast glare-free background illumination.

Art in hospitals

3.75 Works of art and craft can make a significant contribution towards the required standard of interior of a comprehensive children's department. Inclusion of appropriate items should be considered during the building design stage with a view to achieving integration with other aspects of the environment. Every opportunity should be taken to include works by artists and craftspeople throughout the department. These may include paintings, murals, prints, photographs, sculptures, decorative tiles, ceramics, textile hangings and furniture.

3.76 Items selected for a space should be relevant to the age range of children and young people who will occupy that space. Works of art and craft can lend special identity to a space and help give it a sense of locality.

3.77 Advice should be sought from experts on:

a. obtaining grants. In some cases, moneys for art within a capital scheme can be matched by grants from charities or Regional Arts Boards;

b. ensuring quality in all art and craft works;

c. appropriately locating art and craft works;

d. selecting artists and craftspeople.

Fittings and finishes

General

3.78 The quality of finishes in all areas should be of a high standard: the cost allowance makes due recognition of this need. Guidance on the selection of finishes is provided in Health Technical Memoranda (HTMs) (see Bibliography).

3.79 Finishes should be robust enough to withstand accidental impact and additional protection should be provided at likely points of contact. Trolleys and items of mobile equipment which may cause damage should be appropriately buffered.

Colour

3.80 Correct use of colour is essential in the comprehensive children's department. Colour can:

a. significantly improve an environment;

b. influence the morale of patients and staff;

c. help patients to orientate themselves and to recognise particular rooms more quickly.

3.81 Children of different ages are stimulated by and/or appreciate different colour and pattern combinations. For example, infants appear to respond to complex patterns rather than to colour or simple forms, toddlers react to real objects and bold colours, whereas older children and teenagers prefer a neutral background to which they can add their own particular decorations.

3.82 Colours of surfaces in spaces occupied by patients should not distort the colour rendering of light sources. It must be possible to clearly define and easily identify changes to patients' skin tone and colour (see also paragraph 3.72 and paragraph 6.63).

Floors

3.83 Floor coverings and skirtings should contribute to the provision of a non-clinical environment and, at the same time, be hardwearing. They must not present a hazard to disabled people nor restrict the movement of wheeled equipment. Floors should not be, nor appear to be, slippery, and the patterning should not induce disorientation. Changes of floor level should be avoided wherever possible. Surface drag, static electricity, flammability, infection hazards and impermeability to fluids have to be considered. HTM 61 should be consulted for advice on user requirements and performance selection.

3.84 Finishes should be appropriate for the activities to be carried out, restricted in variety for ease of cleaning, and compatible with agreed cleaning routines. Floors used as

play and work surfaces by children and young people should be fitted with carpets with a range of textures. Appropriate cleaning equipment and cleaning routines will be essential.

Doors and frames

3.85 Doors and frames are particularly liable to damage from mobile equipment, and materials which will withstand this should be used. All double-swing doors should incorporate clear glass vision panels, but privacy, safety or other considerations may require that the panels should be capable of being obscured. Where necessary, doors should be capable of being fastened in the open position. Magnetic door retainers should not restrict the movement of traffic.

Windows

3.86 In addition to the various statutory requirements, the following aspects require consideration: illumination and ventilation; insulation against noise; user comfort; energy conservation; the prevention of glare; the provision of a visual link with the outside world.

3.87 Design should ensure that it is possible for cleaners to have easy access to the inside and outside of windows. Guidance on types of windows and on the safety aspects is available in HTM 55 – 'Windows'.

3.88 Windows contribute to the well-being of both patients and staff. Windows should, if possible, have a pleasant outlook. Sills should be low enough for small children to look out without having to climb on furniture.

3.89 Most internal partitions and doors should be glazed to the height of a small child's vision at about 600 to 750 mm.

Internal environmental engineering considerations

Heating and domestic hot water

3.90 Spaces in which patients may be undressed, such as bed rooms, bathrooms, shower spaces and treatment rooms, should each have separate temperature controls. It should be possible to vary the temperature between 21°C and 24°C.

3.91 Heating should be available during summer months for use on cold days. Heat emitters and hot water pipes in spaces occupied by patients should be protected so that patients cannot be burned, even following prolonged contact. The surface temperatures of the heat emitters and pipework should not exceed 43°C.

3.92 Attention is drawn to the requirements for the distribution and delivery at taps of domestic hot water at safe temperatures.

Ventilation

3.93 Natural ventilation is preferred unless there are internal spaces or clinical reasons that call for mechanical ventilation, comfort-cooling or air-conditioning.

3.94 Mechanical ventilation, comfort-cooling and air-conditioning systems are expensive in terms of capital and running costs: planning solutions should be sought which take maximum advantage of natural ventilation. Mechanical ventilation can be minimised by ensuring that wherever practicable, core areas are reserved for rooms whose functions require mechanical ventilation irrespective of whether their locations are internal or peripheral.

Noise and sound attenuation

3.95 Any unwanted sound is a noise and may disturb patients and staff. Noise should be controlled at source. Unnecessary sound insulation may be avoided by careful planning.

3.96 Telephone systems at staff bases need special consideration in respect of both noise and auditory privacy. The telephone installation should permit calls to be transferred from staff bases to a more private location.

4.0 Specific functional and design requirements

Introduction

4.1 This chapter describes in greater detail the individual spaces in a comprehensive children's department in which the principles described in Chapters 2 and 3 can be practised. Details of activities, equipment, environmental conditions and finishes are given in the activity data sheets listed in Chapter 8.

4.2 The chapter is sub-divided into five main sections, as follows:

a. departmental accommodation;

b. out-patients suite;

c. child development centre;

d. in-patient ward;

e. day-care unit.

4.3 The section which describes departmental accommodation (paragraphs 4.4 to 4.27) has been prepared on the basis that the departmental accommodation is part of a comprehensive children's department which includes the four other functional parts (referred to in paragraphs 4.2(b) to 4.2(e) and described in paragraphs 4.28 to 4.193). Project teams planning a comprehensive children's department which does not include all four functional parts will need to consider whether or not any of the spaces in the departmental accommodation are required with separately located functional parts and adjust the space provision accordingly.

Departmental accommodation

Departmental entrance

4.4 Health Building Note (HBN) 51, Supplement 1 – 'Miscellaneous spaces in a District General Hospital' includes planning and design guidance for a departmental entrance which is considered appropriate for use in connection with the comprehensive children's department described in this HBN.

4.5 The departmental entrance may include:

- an entrance canopy;
- a draught lobby;
- a foyer. Public telephones should be located in the foyer. Vending machines may be located here;
- a reception and enquiry desk. The desk should have two heights:
  - (i) for wheelchair and child patients;
  - (ii) for adults and at standing height for occasional writing;
- a general and transport waiting area;
- a wheelchair store (but see paragraph 4.20).

Play area

4.6 A play area should be provided where children and young people can play or read in safety. The play area should:

a. be "en-suite" with the waiting area;

b. include toys, display panels, writing surfaces and books (with appropriate storage) for children and young people of all ages;

c. if possible have access to an external play area (see HBN 45 – 'External works for health buildings').

Office suite

4.7 A considerable amount of office accommodation is required for staff working in a comprehensive children's department. In order to facilitate communication, working together and rational use of space, it is recommended that the majority of staff should be located together in an office suite.

4.8 Planning and design guidance for office accommodation is provided in HBN 18 – 'Office accommodation in health buildings'. Project teams should determine locally the precise content of the office suite based on advice given in HBN 18. A suggested list of spaces, and an indication of the purposes of those spaces, is noted below:

a. Type 3 office workstations for the clinical directorate/departmental manager(s) and consultant paediatricians. Project teams will need to decide how to accommodate the workstations, that is all in separate cellular offices or some grouped in a multi-person office;

b. Type 4 office workstations for junior medical staff, social worker(s), community nurses/health visitors teacher(s), remedial therapist(s) and play therapist(s). It is suggested that (i) junior medical staff, and (ii) the community nurses/health visitor, remedial therapist(s) and play therapist(s) be accommodated in separate multi-person offices and the social worker in a single-person cellular office. Consideration should be given to sharing the use of office workstations, particularly by staff who are not present for long periods of time;

c. Type 5 office workstations for medical and other secretaries. A multi-person office will be most appropriate;

d. interview room;

e. office machines' room;

f. stationery store.

The reception and enquiry desk and waiting area provided in connection with the departmental entrance may be used by people visiting the office suite.

Seminar room

4.9 A seminar room should be provided within the department for teaching, tutorials, meetings, case conferences and clinical instruction. The room may also be used as a base for a clinical nurse teacher. Furniture and equipment should include upright stacking chairs with writing arms, a wall-mounted whiteboard, a mobile X-ray viewer, a video/TV monitor, a wall-mounted display panel and facilities for storing valuable and fragile items. Consideration may be given to linking the seminar room with the assessment/observation/remedial therapy rooms in the child development centre by means of CCTV.

4.10 Children are likely to be involved in demonstrations in the seminar room. The environment, therefore, should be as pleasant as possible, compatible with clinical needs. Suitable decorations and toys can be provided on occasions when children attend.

Staff change/locker rooms

4.11 The guidance in this HBN assumes that:

a. all staff will change within the department;

b. personal hospital and/or departmental uniforms will be issued elsewhere in the hospital.

4.12 Separate staff change/locker rooms are provided for men and women. In the staff change/locker rooms, staff change from outdoor clothing to a uniform and store outdoor clothing and other personal items. A shower should be provided en-suite with each staff change/locker room.

4.13 Personal full-length lockers for the secure storage of dry outer and middle garments, footwear and small items of personal belongings are required. Hanging rails, with security, for the storage of wet outer-garments and lockers for large items of personal belongings should be provided. Used uniforms will be deposited in a soiled linen trolley.

4.14 Project teams should consider providing electronic security locks on access doors to staff change/locker rooms.

Staff sanitary facilities

4.15 Sanitary facilities for the use by staff working in the comprehensive children's department, including WCs with hand-wash basins, should be located adjacent to the staff change/locker room. One WC should include a bidet.

Staff rest room, with beverage bay

4.16 A staff rest room is required where staff can relax and consume snacks and beverages. The rest room should have windows with a pleasant outlook, be comfortably furnished and include a telephone.

4.17 The staff rest room should include a beverage bay with facilities for snacks and beverages, for washing and storing crockery and cutlery, for storing a limited quantity of dry goods, and for storing milk, etc, in a refrigerator. Equipment should include a stainless-steel sink and drainer, an electric water boiler, a microwave cooker, a worktop with cupboards, an automatic dishwasher and a hand-wash basin.

Equipment store

4.18 An equipment store should be provided which is available for use by all functional parts of the comprehensive children's department for the storage of items of equipment not required on a day-to-day basis. Equipment, etc., may include beds, cots, cot sides, mobile and loose items of medical equipment and decorations used on a seasonal basis. Electrical socket-outlets should be provided to enable battery-operated equipment to be recharged.

4.19 Floor space, for parking mobile and large items of equipment, and shelving are required. The equipment store should be planned so that items can be removed easily and should include a sub-divided area where particularly fragile and expensive equipment can be held to help ensure it is not damaged.

Trolley and wheelchair store

4.20 The wheelchair store provided in connection with the departmental entrance should be enlarged to accommodate two patients' trolleys also. The store should enable trolleys and wheelchairs to be removed easily and not encroach on foyer or circulation space.

Baby-buggy and pushchair bay

4.21 A bay is required where parents/carers can safely and securely store baby-buggies and pushchairs during their period of stay in the comprehensive children's department. Baby-buggies and pushchairs may be hung on the wall or placed on shelves: appropriate locking devices and wall protection are necessary. To afford additional security, the contents of the bay should be visible by staff based at the reception and enquiry desk.

Disposal hold

4.22 A disposal hold is required where bags of soiled linen for reprocessing, SSD returns, bags of refuse for disposal and other items as appropriate can await removal by portering staff. Bagged items should be identified appropriately, using a colour-code system, in accordance with local policy.

4.23 The floor space should be clearly sub-divided in order that the types of commodity are separate from each other. This will not only assist rapid collection but should minimise the risk of items for reprocessing being accidentally taken for disposal by incineration.

4.24 Project teams should examine the size of the hold in relation to the anticipated maximum load on the space, for example, the largest number of bags of soiled linen and refuse and SSD returns likely to be held at any one time. The maximum load will be influenced mainly by the workload of the department and the frequency of collections. If the hold appears to be inadequate in size, consideration may be given to increasing the frequency of collection as an alternative to providing a larger hold.

4.25 The disposal hold should be located with easy access from, and as close as possible to, the functional part which generates most items for disposal, probably the in-patient wards, and be convenient for porters to make collections from without needing to enter deeper into the department than necessary. A location close to the secondary entrance to the hospital street may be preferred.

Switchroom

4.26 A departmental switchroom, with lockable doors, housing the main isolators and distribution fuse switchgear for the department should be:

a. accessible directly from a circulation area (access space may be part of the circulation area);

b. sited away from water services;

c. lockable.

4.27 The switchroom, where possible, should be sited within the departmental accommodation. There should be clear and safe access for maintenance staff and care should be taken to ensure that safety is not compromised, during maintenance, from passing traffic or the opening of adjacent doors.

Out-patients suite

Introduction

4.28 The out-patients suite, child development centre and day-care unit provide ambulatory (non-in-patient) care. The sections of this chapter which describe these functional parts (paragraphs 4.28 to 4.80 and 4.174 to 4.193) have been prepared on the basis that:

a. they are part of a comprehensive children's department;

b. use of some of the spaces, which would be required in two or all three of the functional parts if the functional parts were provided separately, can be shared. Such an arrangement obviates unnecessary duplication or triplication of spaces and facilitates economic use of staff.

4.29 All of the spaces required in an out-patients suite are described in this section (paragraphs 4.28 to 4.61). The sections which deal with the child development centre and the day-care unit list (and where necessary comment on) spaces in the out-patients suite which can be shared and describe the remaining spaces required in the functional part.

Reception desk

4.30 The reception desk should provide a low, open, friendly facility that does not give any sense of a barrier or generate a feeling for patients/carers of "them and us". The overall impression must be of high-quality design that combines efficiency with elegance. Patients/carers and staff must be able to talk and exchange information with ease. Children and young people should feel welcome.

4.31 The main function of receptionists will be to receive and register patients and parents/carers upon arrival and to make re-appointments and appointments with other clinics and clinical departments when they leave. The receptionists will also deal with enquiries made in person and provide a link with nursing staff. Information on the movement of patients and their health records may be provided by means of computer links or telephone. Space will be required at the reception desk for VDTs, a working supply of stationery and office accessories, and temporary storage of health records, usually in a health records trolley, for the duration of a clinic session. Care should be taken with the initiation and receipt of telephone calls concerning patients, as telephone calls are a distraction and may be inappropriate to conduct in front of patients and parents/ carers.

4.32 The reception desk should be located and designed so that:

a. there is easy access from the foyer;

b. it is obvious to patients and parents/carers when entering the waiting area;

c. seated receptionists can see:
   (i) patients and parents/carers entering;
   (ii) patients and parents/carers in the waiting and play areas;
   (iii) the entrances to as many consulting/examination rooms as possible;

d. there are two heights to the counter top:
   (i) for wheelchair and child patients;
   (ii) for adults and at standing height for occasional writing.

4.33 The reception desk will be a focal point and should be the subject of special design consideration. Project teams may wish to use the opportunity to commission the reception desk as a special feature of interest to children and young people.

4.34 It is assumed that other administrative and clerical tasks, such as managing appointments systems, issue of clinical reports and discharge letters, liaison with other parts of the healthcare system, preparation of other reports and analysis of statistics, will be carried out by staff in the health records department and/or the office suite in the comprehensive children's department.

Waiting/play area

4.35 Patients and parents/carers will appreciate a waiting/play area which has a comfortable and relaxing environment with domestic-type finishes and furnishings. Different types of tables and chairs are required and should include those suitable for children and young people of different heights and for adults. There should be space for a patient in a wheelchair and for people using walking aids. Children and young people should be able to play or read in safety. Toys, display panels, writing surfaces and books (with appropriate storage) should be provided for children and young people of all ages. Project teams may wish to consider the provision of low-level background music and/or a TV/video system. These may help patients and parents/carers relax, alleviate the boredom of essential waiting and mask confidential discussions. A supply of current reading material should be available in a well-designed holder.

4.36 The layout of the waiting/play area should take account of the separate needs of younger children and of teenagers. Sub-division may be achieved by skillful arrangement of seating, by screens and/or by indoor planting.

4.37 The waiting/play area should have direct access from the foyer, be overseen by the reception desk, and have easy access to the consulting/examination rooms and, if possible, to an external play area (see HBN 45 – 'External works for health buildings'). The waiting/play area should be sized on the basis of an effective appointments system, bearing in mind that it can be expected that each patient will be accompanied by two other persons.

Weighing and measuring room

4.38 A room is required with equipment suitable for weighing and measuring children and young people of all ages with a parent/carer and a member of staff in attendance. The room should be close to, and have easy access from, the waiting/play area and the consulting/ examination rooms.

Consulting/examination rooms

4.39 This HBN has been prepared on the basis that combined consulting/ examination rooms are preferable to separate consulting rooms and examination rooms. The combined room facilitates unbroken consultation and examination and, if there is only one door, greater acoustic privacy. The combined room has greater flexibility in use, as it may be used for either consultation, or examination, or it may be used for both. The provision of combined rooms also simplifies the present and future allocation of rooms to doctors for particular clinics.

4.40 A standard consulting/examination room should be large enough to accommodate a doctor, a nurse, a patient (who may be in a wheelchair), and a parent/carer.

4.41 The room will be used for consultation, examination, taking and recording of blood pressure, and for minor diagnostic and treatment procedures. Space is needed for a desk and chairs, and an examination couch, screened by curtains. There should be sufficient space within the curtained area for a patient to undress/dress in privacy, with assistance when required. The examination couch should be accessible from both sides. Space is needed for storing small items of equipment and small quantities of supplies and for a mobile adjustable inspection lamp. Clinical hand-wash facilities are required.

4.42 The layout of the room should ensure maximum privacy, especially when the door is opened. Communication doors between adjacent consulting/ examination rooms may facilitate the movement of staff, but they are not recommended as their use intrudes upon both the patient's privacy and the consultation. If they are provided, the rooms must not be used as a general traffic route.

4.43 Standard consulting/examination rooms can be used by a wide range of specialties. One consulting/ examination room should be sound-attenuated for use by specialists who require sound protection for certain tests. They should not be used routinely as offices, although they can be allocated for example, as a base for a social worker for the period of a clinic.

Treatment room

4.44 A treatment room is required for clinical investigations and treatments which cannot appropriately be carried out in consulting/ examination rooms and do not need facilities such as an endoscopy room or operating theatre.

4.45 The treatment room is intended for use for most specialties. Procedures may be carried out there:

a. by doctors, nurses and appropriate other staff;

b. with one or two parents/carers in attendance;

c. with the patient lying on an examination couch or a trolley, sitting in a chair, or standing;

d. during a routine clinic session or a dedicated treatment session.

Access to the patient is required from all sides. There should be space for a dressing trolley, a mobile examination lamp, and a wheelchair. Clinical hand-wash facilities are essential.

4.46 Certain clinical procedures require the use of cryosurgical equipment. This equipment may utilise liquid nitrogen, liquid carbon dioxide, high pressure carbon dioxide, or high pressure nitrous oxide. Exhaust from ventilation systems must be discharged safely to avoid ingestion by neighbouring supply ventilation or entry into adjacent windows of naturally ventilated spaces.

4.47 A preparation area is required where sterile packs, lotions and drugs for immediate use are stored and prepared for use, and where trolleys can be prepared for use and/or held. A worksurface is required.

4.48 The treatment room should:

a. have easy access from the waiting/play area and the consulting/ examination rooms;

b. be designed and located so as to achieve maximum visual and auditory privacy. Consideration should be given to:

   (i) its distance from, and position in relation to, patients in the waiting/play area and consulting/examination rooms;

   (ii) sound attenuation;

   (iii) separating the preparation area by means of a partition wall, with the preparation area interfacing the treatment room and the circulation from where the entry is made.

The treatment room should be positioned between the clean and dirty utility rooms with direct access for staff to each from the preparation area. Mechanical ventilation should be provided to control the movement of air to and from other spaces.

4.49 The walls and ceiling should be appropriately decorated for children, bearing in mind the need to maintain clinically acceptable conditions.

Baby feeding room

4.50 A room where a baby can be breast or bottle fed, in privacy, should have direct access from the waiting area. Seating, and facilities for the disposal of waste, are required. Hand-wash facilities should also be provided. The room may be made available to parents/carers attending other parts of the hospital if it is suitably located.

Nappy changing room

4.51 A room where a baby can have a nappy changed, in privacy, should adjoin the sanitary facilities. Seating, and facilities for the disposal of soiled nappies and other waste, are required. Hand-wash facilities should also be provided. The room may be made available to parents/carers attending other parts of the hospital if it is suitably located.

Sanitary facilities

4.52 WCs should be provided for use by patients and parents/carers and include WC pans which are 320 mm to 350 mm in height and space for a parent/carer or member of staff to be in attendance with, and/or to assist, a patient. Hand-wash facilities should be provided in all WCs.

4.53 One of the WCs should accommodate a patient in a wheelchair, with space to allow a patient to be transferred from a wheelchair from either side or from the front of the WC pan, and with grab rails to assist a handicapped patient. One WC should be designed for specimen collection and, if possible, include a hatch to the dirty utility room through which specimens can be passed. One WC may be designed to accommodate the requirements for the two types of WC described in this paragraph.

Clean utility room

4.54 A clean utility room is required where drugs, medicines and lotions may be stored and prepared, a working supply of clean and sterile supplies may be held, and dressing trolleys prepared for clinics. A Controlled Drugs cupboard may be located here. Clinical hand-wash facilities are required. The room should be located adjacent, and with direct access, to the treatment preparation area.

Dirty utility room

4.55 A dirty utility room should include facilities for cleaning dressing trolleys and other items of equipment, for testing specimens of urine and recording results, for the disposal of liquid waste, and for temporarily holding items requiring reprocessing or disposal. A combined disposal unit, with worktop, and clinical hand-wash facilities will be required. Mechanical extract ventilation should be provided. The dirty utility room should be located adjacent, and with direct access, to the treatment preparation area. If possible, it should also be adjacent to the specimen WC and include a hatch through which specimens can be passed.

Sister's office

4.56 An office is required where a sister/charge nurse can carry out administrative and clerical work and hold interviews and discussions with patients, parents/carers and staff. An office workstation with a desk, seating for up to three other persons (including a patient in a wheelchair or with a walking aid and a carer), storage for books and files, and a computer terminal, should be provided. A repeater warning light for a Controlled Drugs cupboard may be located here.

Cleaners' room

4.57 The cleaners' room provides a base for domestic services staff who clean the out-patients suite, a store for cleaning equipment and for cleaning materials, and a space for the routine servicing and cleaning of cleaning equipment. Some cleaning equipment is bulky – a factor which should be taken into account when designing and locating the cleaners' room.

4.58 There should be sufficient space in the cleaners' room for:

a. storing, washing, drying and manoeuvring cleaning machines;

b. loading, parking and unloading cleaners' trolleys;

c. emptying and filling buckets and bowls.

Provision of a low-level sink will facilitate the emptying and filling of buckets of water. Access to sinks should be unrestricted. The room should be well ventilated to help equipment dry quickly.

4.59 It is assumed that large items of cleaning equipment used infrequently on a whole hospital basis will be stored elsewhere in the hospital.

Switch cupboard

4.60 A switch cupboard, with lockable doors, housing the main isolators and distribution fuse switchgear for the out-patients suite should be:

a. accessible directly from a circulation area (access space may be part of the circulation area);

b. sited away from water services;

c. lockable.

4.61 The switch cupboard, where possible, should be sited within the suite. There should be clear and safe access for maintenance staff and care should be taken to ensure that safety is not compromised, during maintenance, from passing traffic or the opening of adjacent doors.

Child development centre

Introduction

4.62 As explained in paragraph 4.29, this section lists spaces in the out-patients suite which can be shared and describes the remaining spaces required when the child development centre is provided as part of a comprehensive children's department.

4.63 If a child development centre is attached to accommodation other than the out-patients suite in a comprehensive children's department, and sharing use of some spaces in that accommodation is acceptable, special consideration will need to be given to the provision of spaces dedicated for use as part of the child development centre.

Shared spaces in out-patients suite

4.64 It is considered that the spaces listed below may be used by patients and parents/carers attending the child development centre:

a. reception desk;

b. weighing and measuring room;

c. consulting/examination rooms;

d. treatment room;

e. baby feeding room;

f. nappy changing room;

g. clean utility room;

h. dirty utility room;

j. cleaners' room.

Waiting/play area

4.65 A waiting/play area is required for patients and parents/carers attending the child development centre similar to those included in the out-patients suite and described in paragraphs 4.35 to 4.37.

Assessment/observation/remedial therapy rooms

4.66 Two rooms with a shared viewing space will be required for use for assessment, observation and remedial therapy by members of the multi-disciplinary team. Procedures include:

a. observation of children's responses to adults in given situations and to their interaction with other children;

b. observation of children's performance in free play by, for example, a teacher, a play specialist, and/or psychologist;

c. simple free-field testing of hearing, sight and speech, with more thorough investigations being carried out in the appropriate clinics of the main out-patient department.

4.67 The assessment/observation/remedial therapy rooms will also be used for:

a. group activities organised by a teacher and other members of staff;

b. special training or discussion sessions for parents of handicapped children;

c. appropriate treatment by physiotherapists and/or occupational therapists.

4.68 A clinical atmosphere should be avoided. Fittings and furniture should include shelves and cupboards for the storage of equipment, toys, etc, pin- and chalk-boards wall-mounted at low level, a variety of tables/desks and nursery furniture, semi-easy chairs, and a mobile mirror. Facilities for play (including sand and water play), for remedial therapy and for hand-washing are required. Full length lockers for the secure storage of dry outer garments and other personal belongings of patients and parents/carers may be located in a recess of the assessment/observation/remedial therapy rooms. The lockers should be allocated on a personal basis.

Viewing room

4.69 A viewing room should be located between the two assessment/observation/ remedial therapy rooms. One-way viewing panels and audio and/or video transmission and recording equipment should be provided between the viewing room and the assessment/observation/remedial therapy rooms so that the activities of a child or young person in those rooms can be observed from, and heard and recorded in, the viewing room.

4.70 The viewing room should contain shelves and a table to accommodate the transmission and recording equipment. A two-way speech system may be required. The room will need to be mechanically ventilated if it is an internal space.

Dining area

4.71 Patients and parents/carers who attend for whole day sessions should be provided with morning drinks, midday meals and mid-afternoon drinks. These occasions are used for clinical and training purposes, including assessment and monitoring of ability.

4.72 A small dining area en-suite with the waiting/play area and accommodating a dining table, a few stacking chairs, storage for a small amount of cutlery, crockery and dry foods, and facilities for the preparation or dispensing of beverages, are required. The catering services will depend on whole hospital policies.

Sanitary facilities

4.73 Two WCs should be provided for use by patients, parents/carers and visitors and include WC pans which are 320 mm to 350 mm in height and space for a parent/carer or member of staff to be in attendance with, and/or to assist, a patient. Hand-wash facilities should be provided in all WCs.

4.74 One of the WCs should accommodate a patient in a wheelchair with space to allow a patient to be transferred from a wheelchair from either side or from the front of the WC pan, and with grab rails to assist a handicapped patient. The other WC should include a small area where an incontinent older patient may be cleaned and changed. A small couch and chairs should be provided. Clinical hand-wash facilities are required. There should be easy access from this WC to the dirty utility room.

4.75 A patient's shower should be provided adjacent to the WCs.

Office

4.76 Office accommodation for staff who work in the child development centre should be provided in the office suite in the departmental accommodation (see paragraph 4.8). However, a two-person office should be located in the child development centre where any member of staff conducting sessions may, for example, write up notes and make/receive telephone calls.

General store (1)

4.77 A store is required for toys, bulky equipment, such as wheelchairs and a sand-container, chairs and other items which are in regular use in the assessment/observation/remedial therapy rooms and do not require "clean" conditions. Floor space is required to park and stand toys and equipment, as well as shelves on which items can be placed.

General store (2)

4.78 A second store, with shelving, is required for items such as clean linen, disposables, stationery, art materials and general supplies. A lockable cupboard should be provided where expensive equipment used for tests and demonstrations can be stored separately.

Switch cupboard

4.79 A switch cupboard, with lockable doors, housing the main isolators and distribution fuse switchgear for the child development centre should be:

a. accessible directly from a circulation area (access space may be part of the circulation area);

b. sited away from water services;

c. lockable.

4.80 The switch cupboard, where possible, should be sited within the centre. There should be clear and safe access for maintenance staff and care should be taken to ensure that safety is not compromised, during maintenance, from passing traffic or the opening of adjacent doors.

In-patient wards

Bed spaces

4.81 Each bed/cot space should be capable of accommodating:

a. basic items of furniture and equipment, such as a variable-height (but "child-proof") bed, a cot or an incubator, a bedside locker (or locker wardrobe), an overbed table, an easy chair and a stacking chair;

b. a bed or reclining chair for the use of a parent/carer;

c. additional items of equipment used on an occasional basis, such as ventilators, monitoring equipment, intravenous pump and nasogastric food pump administration, and a mobile baby bath;

d. the use and storage of toys and books;

and should be provided with:

e. a bed-head luminaire;

f. a bed-head services panel incorporating:
   (i) electrical socket-outlets;
   (ii) luminaire control switch;
   (iii) nurse call button/indicator lamp;
   (iv) staff/staff emergency pull switch;
   (v) socket for patient handset;
   (vi) patient handset storage bracket;
   (vii) radio/TV stethoscope headset outlet (may be on handset control unit);

g. patient handset control unit incorporating:
   (i) nurse call button;
   (ii) reassurance light;
   (iii) luminaire switch;
   (iv) radio/TV volume control knob;
   (v) radio/TV selector switch;

h. oxygen, vacuum and medical compressed air outlets;

j. a pin-board for the patient's personal use.

Single-bed rooms

4.82 All single-bed rooms should be provided with:

a. personal washing facilities, suitable for use by a seated patient;

b. clinical hand-washing facilities;

c. doors;

d. curtains and/or blinds to glazed screens and windows to permit privacy when required and protect patients from glare and solar gain, controlled from within the room.

4.83 Two of the single-bed rooms should have:

a. en-suite sanitary facilities, with a WC, shower and hand-wash basin. The WC pan should be normal (adult) height and able to accommodate a patient on a sanitary chair;

b. a mechanical ventilation system to facilitate provision of source isolation or protective isolation, as necessary.

4.84 The remaining single-bed rooms should have sliding doors or a folding partition to enable two single-bed rooms to be converted to a multi-bed room with two beds as and when necessary. Privacy can be provided, for example when one of the patients is receiving medical or nursing attention, by temporarily closing the sliding doors or the folding partition (dependent on the design and construction) or by means of curtains.

Multi-bed rooms

4.85 Each bed space should not be less than 2.9 m × 3.0 m (with no intrusions into this space) and be separable by curtains to provide a degree of privacy. The access dimension for movement of staff, patients and equipment, when the curtains are drawn around opposing beds, should be no less than 900mm. Curtains should be shadow-proof, flame retardant, and, if suspended from ceiling tracks, have a net or scalloped inset heading to ensure ventilation and light when drawn. Particular attention should be paid to the location of windows in relation to beds. Windows placed between beds should be so located that patients do not suffer from draughts. Lower floor and upper floor window areas should be the same, except where the upper floor is provided with clerestory or roof lights, in which case the window area may be proportionately reduced (see Low Energy Hospital Study and Nucleus Study No 18). Solar gain, down-draught, leaks and the noise of rain are problems

commonly associated with roof lights, but all these are soluble. Locker wardrobes should be so placed that they do not block the light or view.

4.86 All multi-bed rooms should include:

a. clinical hand-washing facilities. It is essential that the space for this activity does not impinge on any of the bed spaces or the day area;

b. a day area to encourage patient mobilisation over a short distance. Patients may also play and dine in this area;

c. en-suite sanitary facilities similar to those described in paragraph 4.83(a);

d. curtains and/or blinds to glazed screens and windows to permit privacy when required and protect patients from glare and solar gain, controlled from within the room.

4.87 Project teams should decide in consultation with the local fire authority whether multi-bed rooms should or should not be fitted with doors for fire safety reasons, for example, to limit the spread of smoke. Doors reduce disturbance from noise and increase privacy, which is especially important when a ward accommodates both sexes. On the other hand, observation is reduced and movement of patients and staff is hampered when doors are closed. If the local fire authority advises that doors are not necessary and it is decided not to include them, then the design of the entrance should be such that it is possible to fit doors later without affecting the use of space on each side.

4.88 The two multi-bed rooms with two beds designated for use by teenagers should be close to their recreation, day and dining room.

Play and dining room

4.89 A play and dining room is required where children can participate in a range of different activities simultaneously. Activities may include group work, individual play and family participation play. The space provided should enable young children to ride on toys. Consideration may be given to providing two separate play and dining rooms for the area allowed in this HBN in order to separate different types of play activity. Play specialists will normally supervise activities in the play and dining room. However, other staff, parents/carers, patients and siblings should have access to the room and specified play items when play specialists are not available.

4.90 Fittings, furniture and equipment in the play and dining room should include:

- a small sink at child height;
- a fitted mirror for use in "dressing up" for imaginative play;
- part of one wall covered with a chalk-board for use by younger children;
- open bookshelves and shelves for toys and games at heights appropriate for children;
- storage for toys and other bulky items and for materials such as paper, paint and clay;
- a lockable cupboard for the storage of play items requiring a degree of security;
- tables and chairs suitable for the range of ages likely to use the accommodation;
- a trolley with raised edges to move play equipment to children who are confined to their beds.

Portable room dividers may be required in order to organise some activities within the play and dining room.

4.91 A small area of the play and dining room should be designated for dining. The dining table(s) and chairs provided there may be used for such appropriate play activities as will not be disrupted by the need to dine.

4.92 There should be easy access from bed rooms to the play and dining room for ambulant, wheelchair, and bed-bound patients, and for patients with mobility aids and intravenous stands, etc. There should be direct access to a safe suitable outside play area and a garden in a sunny sheltered position. Surfaces by slides, climbing equipment, swings or other activity equipment must conform to safety standards. A suitable covered area should be provided to screen bed-bound patients from the sun. Particular attention should be paid to the need for ease of supervision and the security aspect of possible outside interference and children wandering away. The design of doors leading to the outside play area should allow easy access from patients in beds and wheelchairs.

Recreation, day and dining room

4.93 A recreation, day and dining room is required where teenagers can be separate from younger patients in the play and dining room(s). The room should provide a conducive environment for patients to socialise with each other and with parents/carers and siblings. Activities may include indoor recreation, watching television (TV) and videos, listening to radio and music, using computers and playing computer games, reading and writing. Teenagers may dine here and consume refreshments they have prepared in the beverage bay.

4.94 Fittings, furniture and equipment for the recreation, day and dining room should include:

- pin-boards for pictures;
- storage for games and games equipment;
- a table-top game such as snooker, pool and/or table-tennis;
- a TV and music centre, including radio and recording equipment;
- computers and computer games;
- bookcases and a magazine rack;
- a lockable cupboard for the storage of items requiring a degree of security;
- tables and chairs;
- semi-easy and easy chairs.

4.95 There should be easy access from bed rooms to the recreation, day and dining room for ambulant, wheelchair, and bed-bound patients, and for patients with mobility aids and intravenous stands, etc. Teenagers should access the outside play area via the play and dining room.

Classroom

4.96 Guidance on the design of education facilities for children in hospitals is given in the Department of Education and Science Design Note 'Meeting the Educational Needs of Children in Hospital'. A separate classroom is required in order to provide an environment which is conducive to study and free from the distraction of young children. Provision of a classroom will enable the Local Education Authority to carry out its statutory duties.

4.97 The furniture and equipment required for educational purposes should be appropriate for the range of pupils likely to use it, their mobility and type of illness. Trolleys are valuable aids to the flexible use of space in the classroom and help teachers to meet the needs of bedside teaching. Adequate lockable storage facilities should be provided within the classroom for equipment which needs to be kept secure. Responsibility for the provision of furniture and equipment rests with the Local Education Authority.

4.98 Where possible, a play and dining room should be adjacent to the classroom and separated from the classroom by a folding door with good sound attenuation so that a single space can be created easily for certain play or education activities which require greater space.

4.99 The play and dining room, the recreation, day and dining room and the outside play area may be used during periods of school "breaks".

4.100 When not in use as a classroom, the space should be available for use for recreational or other appropriate purposes: the design and furnishing should not preclude this.

Teacher's room

4.101 A space will be required by the teacher to use as a professional base. A small separate part-glazed room adjacent to the classroom will be most suitable. The teacher's room may also be useful for one-to-one or one-to-two teaching activities.

Therapy room

4.102 A therapy room should be provided for ward-based remedial therapy and rehabilitation activities. The therapy room should allow for the functioning of a wide range of equipment, some fixed and some mobile, and for a range of activities for individuals or groups of children and young people. Project teams should consult remedial therapy staff locally with regard to how the room might be used and for precise furniture and equipment requirements: these factors will be influenced by the age range of the children and/or young people using the room.

4.103 Older children/teenagers may also attend the rehabilitation department: younger children should attend only if a separate treatment area is available.

Admission room

4.104 Some children and young people will arrive on an in-patient ward and need to be examined, weighed and measured prior to being admitted as in-patients. Consultation with parents/carers may also be necessary. In a comprehensive children's department, these activities are best conducted in the out-patients suite, provided the out-patients suite is located conveniently to the in-patient ward(s). If not, one admission room should be provided to serve all the in-patient accommodation. As an admission room may be under-utilised, consideration should be given to sharing use of the space, for example, as an office or for interviews.

4.105 Appropriate facilities for the storage of examination equipment, such as a sphygmomanometer, auroscope and tendon hammer, and a working supply of stationery should be provided. Furniture and equipment should include an examination couch, a dressing trolley, a mobile examination lamp, a small desk, a desk chair and a side chair. Clinical hand-wash facilities will be required.

4.106 The admission room should be located close to the entrance to an in-patient ward so that a patient does not enter deeper into the in-patient ward than necessary, and with easy access to other in-patient wards for children and young people, if provided.

Treatment room

4.107 The treatment room provides facilities for medical and nursing staff to perform certain clinical procedures. The treatment room may also be used for medical examination of the patient and for the care of critically ill children pending transfer to a regional paediatric intensive-care unit. Minor treatment procedures and medical examinations will usually be carried out in the bed space.

4.108 Patients may be brought to the treatment room on a bed or trolley or in a wheelchair, or they may walk; they will probably be accompanied by a member of staff and a parent/carer. The door to the treatment room should be wide enough to permit easy access. Door swings should not impede movement or activities within the room. All round access to the patient on the examination couch is essential. The examination couch must be mobile so that it can be moved out of the way to allow access to patients who need to be treated on a patient trolley or bed.

4.109 The treatment room should be equipped with terminal units for oxygen and for vacuum, an X-ray viewing facility, a mobile examination lamp, a staff emergency call point, and clinical hand-wash facilities. Clinical-quality colour-rendering light sources should be provided and walls, ceilings and floors should be of suitable colour and reflectancies. The room should be sound attenuated. Natural light is not essential; mechanical ventilation will be required.

4.110 It is assumed that all supplies used in the treatment room will be stored in the clean utility room. Alternatively, project teams may consider combining the treatment room and the clean utility room in order that supplies are immediately accessible to staff carrying out treatments: one larger space may also be preferred to accommodate the occasional need for short-term intensive care. If a combined treatment/clean utility room is provided, consideration will need to be given to access for supplies for use elsewhere in the in-patient ward at times when the combined room is in use.

4.111 The treatment room should not be close to any spaces regularly occupied by patients but should be easily accessible from bed spaces.

4.112 The walls and ceiling should be appropriately decorated for children, bearing in mind the need to maintain clinically acceptable conditions.

Interview room

4.113 An interview room should be provided where interviews and discussions can take place in privacy, including, for example, with parents/carers of deceased patients. The room may also be used as a quiet sitting or reading space for patients and/or parents/carers.

4.114 Planning and design guidance for an interview room is included in HBN 18 – 'Office accommodation for health buildings'.

Sanitary facilities

General

4.115 It is important in assisting early mobilisation of patients for sanitary facilities to be easily accessible, conveniently located and well designed (see Health Technical Memorandum (HTM) 64 – 'Sanitary assemblies').

4.116 Sanitary facilities may be located centrally or may be more closely associated with bed rooms. In this HBN, en-suite sanitary facilities are included with two single-bed rooms and all multi-bed rooms. This arrangement is helpful in in-patient wards which accommodate both sexes: also, the average distance from a bed to facilities is likely to be shorter.

4.117 Only a small number of centrally-located sanitary facilities are required and, therefore, it is suggested that each facility:

a. should be able to accommodate a patient in a wheelchair, on a sanitary chair or in a lifting device, as appropriate;

b. has space for a member of staff or parent/carer to be present and, if necessary, to assist;

c. includes grab and hand rails.

4.118 Hand-wash basins, mirrors, paper-towel dispensers, towel rails and soap dispensers (if fitted) should be positioned at an appropriate height for the patients who will use them. Socket-outlets should be provided for electric shavers in spaces used by teenagers.

4.119 Doors to sanitary facilities should be fitted with a mortice indicating bolt with an emergency release plate fixed out of reach of young children.

Baths and showers

4.120 A range of options for the provision of baths and showers is listed below. Project teams will need to decide locally which types to include. Maintaining a balance between provision of facilities which are matched to purpose and economic use of space will not be easy.

4.121 Baths may be:

a. provided as nursing table bathing sinks for bathing infants. Bathing sinks are more expensive than plastic baths but have a number of advantages such as:
   (i) they are less time consuming. There is no "setting-up" period;
   (ii) a high proportion of time is spent in contact with the patient and less time on domestic chores;
   (iii) bending is reduced, providing they are mounted at the correct height;
   (iv) they are easily cleaned;

b. provided specifically for toddlers. Elevated baths are most suitable;

c. domestic in design;

d. peninsular, facilitating easy access to both sides and one end of the bath;

e. fitted with a shower attachment. This arrangement allows a patient to take a bath or a shower, as determined by personal or clinical preference;

f. variable height;

g. in an assisted bathroom;

h. in a domestic bathroom.

For young children, bench space should be provided where they can lie or sit to be dried and dressed. If a shower attachment is fitted then the flexible hose should be no longer than 1.5 metres, the possibility of slipping on the floor should be minimised by competent design, and an appropriate specification and the possibility of slipping in the bath should be minimised by use of a bath with an integral non-slip surface at the place where a person stands to shower.

4.122 Showers may be provided:

a. in an assisted shower room;

b. in a domestic shower room;

c. as a shower attachment to a bath (see paragraph 4.121.(e)).

Showers are generally liked by children and young people, particularly teenagers. An assisted shower is ideal for patients who are physically disabled.

4.123 The cord of the patient nurse call system should be easily identifiable, accessible from the wet area, and descend far enough to be within the reach of a patient who has fallen or collapsed. The floor surface should be slip-resistant. The gradient of the floor of the wet area should ensure effective drainage to the waste outlet, thereby preventing ponding.

4.124 Ventilation should preclude excessive heat and humidity.

WCs

4.125 Centrally located WCs should be within easy reach of bed spaces, the play and dining room(s) and the recreation, day and dining room. The following points should also be taken into account:

a. all WCs must have provision for hand-washing;

b. as patients may wish to use the WC before or after bathing or showering, a WC and hand-wash basin should be installed in each bathroom/shower room;

c. at least one assisted WC should be so designed that staff can assist the patient from either or both sides. A member of staff must be able to leave the WC without exposing the patient to view, and if privacy cannot be ensured by room design then an internal curtain or screen must be fitted.

4.126 Project teams will need to decide on the heights of WC pans. A WC pan with a height of 320 mm to 350 mm is suitable for children. Young children will use a potty. Provision should be made for accommodating a child's own potty.

4.127 Appropriate sanitary arrangements should be made for older girls.

4.128 In order to minimise disturbing others, patients in multi-bed rooms may be encouraged to use centrally located WCs during the night.

Ward office/staff base

General

4.129 Paragraphs 4.131 to 4.134 describe a ward office and a separate staff base: together, the two spaces accommodate the functions normally consolidated at a staff base. Paragraph 4.135 notes matters which will require consideration if the functions are combined into a "conventional" staff base. Project teams will need to decide which arrangement they prefer.

4.130 Provision of a staff base from which staff can see as many patients as possible, and which allows as many patients as possible to see staff, should be the most important consideration.

Ward office

4.131 The ward office is the administrative and communication centre for the in-patient ward. Activities include the exchange of information orally – both directly and by telephone – and through computer terminals, together with the written work associated with patient care, treatment, and ward management. Project teams will need to consider local applications of information management and technology and the provision of visual display terminals (see paragraphs 2.58 to 2.62). Storage units for stationery such as X-ray and pathology request forms are needed. In-patients' health records and X-rays may be stored in a health records trolley parked in the ward office. Facilities for viewing X-rays should be provided. Work surface is required to accommodate four members of staff simultaneously.

4.132 Repeat indicator lights for call systems and the Controlled Drugs cupboard should be located where they will be certain to be seen by a member of staff working in the office.

Staff base

4.133 Priority should be given to locating a staff base where staff can see and be seen (see paragraph 4.130). Provision of a "simple" staff base (in conjunction with a separate ward office) is probably the most appropriate way of meeting this demand. Other location requirements include:

a. entry to the in-patient ward should be controllable;

b. the indicator lights of both the call system and of the Controlled Drugs cupboard should be in direct view;

c. the fire hose reel and isolating valves for medical gases/vacuum should be nearby.

4.134 The only items of furniture and equipment required are a single-pedestal desk, a desk chair, a telephone and a desk light. The telephone should have a bell with variable sound volume and a light as an alternative to sound at night, and the desk light should be able to be dimmed. The health records trolley may be parked here and facilities may be provided for viewing X-rays nearby as an alternative to the ward office.

4.135 If the functions of the ward office and staff base are combined then it is more likely that patients will be disturbed by ward administrative activities, particularly unwelcome at night. The following measures may serve to muffle sound, and reduce the light from the staff base:

a. a canopy over the staff base lined with sound absorbing materials;

b. careful shading, direction, and intensity control of lights at the staff base;

c. variable sound volume on telephone bells, with lights as an alternative to sound at night;

d. full-height glazed partitions with doors to patients' bedrooms;

e. soft floor finish.

Sister's office

4.136 An office is required where a sister/charge nurse can carry out administrative and clerical work and hold interviews and discussions with patients/carers and staff. An office workstation with a desk, seating for up to three other persons (including a patient in a wheelchair or with a walking aid and a parent/carer), storage for books and files, and a computer terminal, should be provided. A repeater warning light for a Controlled Drugs cupboard may be located here.

Clean utility room

4.137 A clean utility room is required where drugs, medicines, lotions and intravenous infusion packs may be stored and prepared, a working supply of clean and sterile supplies may be held, equipment can be assembled and

prepared for clinical procedures, and dressing and medicine trolleys parked. The Controlled Drugs cupboards should be located here. Clinical hand-wash facilities are required. The room should be easily accessible from the ward office/staff base but inaccessible to patients. A half-glazed door with high-level latch should be provided.

Dirty utility room

4.138 The dirty utility room provides facilities for the preparation for use, and disposal of contents following use, of bedpans, potties, urinals and washbowls. The distance between the bed spaces and the dirty utility room should be as short as possible. Project teams must decide between a disposable bedpan system with bedpan macerator or a non-disposable system with bedpan washer and plan accordingly. In making their choice, account should be taken of cost and storage needs.

4.139 Working stocks of disposable items, for example urinals, bedpans, potties, vomit bowls etc, should be available on open adjustable shelving for easy access. Alternatively, special racks for non-disposable urinals, bedpans and potties and a smaller amount of shelving may be provided.

4.140 The dirty utility room is also used for simple urine testing, holding specimens, and parking sanitary chairs and commodes. Clinical specialties or local laboratory services may require that a refrigerator for holding specimens for pathological investigation must be provided.

4.141 Space for temporarily holding materials for disposal or reprocessing should be limited because sacks and bags, once full, should be closed and taken to the disposal hold to await collection. Prompt removal of bags to the collection point will preclude obstruction of the activity space and a build up of odours. The whole hospital policy for disposal will determine the frequency of collection.

4.142 Mechanical extract ventilation should be provided.

4.143 The dirty utility room must be inaccessible to patients. A half-glazed door with high-level latch should be provided.

Ward pantry

4.144 The ward pantry should be equipped with facilities for:

a. the preparation of beverages and light snacks;

b. the checking, recording, etc, of food temperatures prior to serving it to patients;

c. the filling of patients' water jugs;

d. the storage of dry goods and a limited amount of crockery and cutlery;

e. storing a limited amount of perishable food in a refrigerator;

f. mechanical and manual washing-up of a limited amount of crockery and cutlery;

g. hand-washing.

4.145 Meals are transported to in-patient wards in trolleys. The cost allowance for the in-patient ward pantry described in this HBN accommodates:

a. a central bulk food service, with hot food delivered in bulk; or

b. a cook-chill service, with chilled food delivered and held in bulk and then reheated in the trolley in which it has been delivered.

Facilities for staff who monitor regeneration of cook-chill food to change, securely store clothes and for hand-washing should be included en-suite with the ward pantry.

4.146 If project teams wish to employ other methods of food service, including cook-chill systems using more than one trolley or a fixed regeneration oven, catering and other appropriate professional advisors should be consulted. Careful consideration will have to be given to:

a. the need for different equipment and its space implications;

b. the operational implications of making changes, both at ward level and on a whole hospital basis.

4.147 Space is required for the storage of a general purpose trolley which will be used for the distribution of beverages and water jugs and glasses, etc. It may also be used when dining positions are set with items stored in the ward pantry, such as cutlery and condiments.

4.148 It is assumed that most items of crockery and cutlery used for main meals will be returned to the central kitchen with the food trolley for washing-up.

4.149 The safety of children should be recognised in the location and design of the ward pantry.

4.150 In a comprehensive children's department with one in-patient ward only, the pantry may also be used for the storage and preparation of baby feeds.

Cook-chill trolley room

4.151 Regeneration of cook-chill food may be removed from ward pantries of two or more in-patient wards and take place in a separate cook-chill trolley room. The room can include equipment to facilitate the system for regeneration selected by a project team. The space must be large enough to permit large heavy trolleys to be manoeuvred easily. Facilities will be required for checking, recording, etc, food temperatures and for hand-washing.

If ward staff monitor regeneration of food, facilities will also be required for changing and securely storing clothes.

Baby food store and preparation room

4.152 One baby food store and preparation room should be located in the in-patient ward that will accommodate babies in comprehensive children's departments with more than one in-patient ward.

4.153 Facilities will be required for the:

a. storage of the main stock of formula feeds;

b. preparation of baby feeds by staff and demonstration of the preparation of baby feeds and sterilization of equipment on a domestic scale.

4.154 A sink unit with a cupboard and drawers will provide for the storage of bowls, spoons and a working supply of formula feeds. A refrigerator and electric kettle will also be required.

Linen store

4.155 The type of linen store depends on the linen supply policy: for a top-up system, a room with shelving; for an exchange trolley system, a space to park linen trolleys. In both cases, the volume of storage space is determined by the frequency of delivery. Spare pillows, duvets and blankets should be stored in this space.

Clothing store

4.156 Patients will be encouraged to wear their own clothing. However, a clothing store is required for a back-up stock as items will need to be loaned to some patients. The store should include hanging space for clothing of different sizes and compartmentalised shelving for items such as cardigans and underwear.

4.157 The clothing store and a linen store which is enclosed may be contained in one large space.

General store

4.158 A general store for items in daily use should include floor space for parking mobile equipment and standing pieces of equipment and adjustable shelves.

Resuscitation trolley bay

4.159 A parking bay is required for a paediatric resuscitation trolley. The trolley must be parked close, and with easy access to the bed rooms: it should not obstruct circulation areas. An electrical socket-outlet is required. An appropriately located resuscitation trolley bay may serve a pair of in-patient wards.

Wheelchair and baby-buggy bay

4.160 A bay should be provided where a wheelchair and baby-buggies/pushchairs/ prams retained for use in the in-patient ward can be parked: they should not obstruct circulation areas.

Cleaners' room

4.161 The cleaners' room described in paragraphs 4.57 to 4.59 is relevant for a ward. An appropriately located cleaners' room may serve a pair of in-patient wards.

Laundry room

4.162 A laundry room should be provided where patients, parents/carers and staff, as appropriate, can launder patients' clothes. Equipment for washing, drying and ironing clothes will be required. Equipment should include a stainless-steel sink and drainer, and a work-top with cupboards. The laundry room should be domestic in scale and style but furniture and equipment will need to be robust. An appropriately located laundry room may serve a pair of in-patient wards.

Beverage bay

4.163 A beverage bay should be provided where patients, parents/carers and staff, as appropriate, can prepare snacks and beverages. Facilities should be provided for washing and storing crockery and cutlery, for storing a limited quantity of dry goods, and for storing perishable foods in a refrigerator. Equipment should include a stainless-steel sink and drainer, an electric water boiler, a microwave cooker, a worktop with cupboards and a hand-wash basin.

4.164 A beverage bay located close to the parent/carer overnight stay accommodation will be convenient for use by parents/carers staying at night.

Room for use of breast pump

4.165 A pleasant room should be provided where a mother can sit in privacy and comfort to express milk for her baby. A crib and facilities for storing a breast pump will be required.

4.166 Special arrangements (which are not considered in this HBN) will need to be made if expressed breast milk is to be stored (see joint letter from Chief Medical Officer/ Chief Nursing Officer, Department of Health and Social Security, references PL/CMO (89)4 and PL/CNO (89)3 dated 4 July 1989). Alternatively, consideration may be given to use of facilities in the maternity department

Bed rooms for parents/carers

4.167 Bed rooms should be provided for parents/carers who may wish, or for whom it is desirable, to sleep away from their child or for whom accommodation is not otherwise available. The room should contain two single divan beds (with bedside tables and lamps), a wardrobe (with two compartments), two chairs and a coffee table. A hand-wash basin is required for personal washing. The bed rooms should be part of the suite of accommodation for parents/carers and within dressing-gown distance of all bed spaces.

4.168 Project teams will need to decide how many bed rooms to provide. The Schedules of Accommodation, Chapter 7, include one bed room as basic accommodation; additional bed rooms are optional.

Sitting room for parents/carers

4.169 A sitting room should be provided in the parents/carers suite where parents/carers can relax and consume snacks and beverages prepared in the utility room. The room should be pleasantly furnished with comfortable easy chairs, semi-easy chairs and occasional tables.

4.170 This HBN assumes that parents/carers will take main meals in the staff dining room. However, if main meals are to be taken in the sitting room then project teams will need to make arrangements in accordance with local policy and provide appropriate facilities in the sitting room.

Sanitary facilities for parents/carers

4.171 A WC, with a hand-wash basin, and a shower should be included in the parents/carers suite.

Switch cupboard

4.172 A switch cupboard, with lockable doors, housing the main isolators and distribution fuse switchgear for the in-patient ward(s) should be:

a. accessible directly from a circulation area (access space may be part of the circulation area);

b. sited away from water services;

c. lockable.

4.173 The switch cupboard, where possible, should be sited within an in-patient ward. There should be clear and safe access for maintenance staff and care should be taken to ensure that safety is not compromised, during maintenance, from passing traffic or the opening of adjacent doors.

Day-care unit

Introduction

4.174 As explained in paragraph 4.29, this section lists spaces in the out-patients suite which can be shared, and describes the remaining spaces required when the day-care unit is provided as part of a comprehensive children's department.

Shared spaces in out-patients suite

4.175 It is considered that the spaces listed below may be used by patients and parents/carers attending the day-care unit:

a. reception desk;

b. weighing and measuring room;

c. consulting/examination rooms;

d. treatment room;

e. baby feeding room;

f. nappy changing room;

g. clean utility room;

h. cleaners' room.

Waiting/play area

4.176 A waiting/play area is required for patients and parents/carers attending the day-care unit similar to that described in paragraphs 4.35 to 4.37.

Staff base/clean utility bay

4.177 A small staff base with an associated small clean utility bay should be located:

a. near the entrance to the day-care unit from the waiting area;

b. so that staff at the base can:

(i) see patients and parents/carers enter the day-care unit;

(ii) see patients in the bed spaces;

(iii) visually supervise a Controlled Drugs cupboard located in the clean utility bay.

4.178 Patients and parents/carers will be received in the day-care unit at the staff base. All administrative aspects of reception and registration, however, should have been completed at the reception desk. The staff base will require a desk with a VDT and keyboard and a small amount of storage for files, stationery and records. An X-ray viewer will also be required.

4.179 The clean utility bay should include storage facilities for small quantities of medical equipment and supplies and linen.

Single and multi-bed rooms

4.180 The bed spaces, single-bed rooms and multi-bed rooms for in-patient wards, as described in paragraphs 4.81, 4.82, 4.83(a) and 4.85 to 4.87 of this HBN, are applicable to the bed spaces, single-bed rooms and multi-bed rooms required in the day-care unit.

4.181 Project teams should bear in mind the guidance in paragraph 3.34 in connection with the location of bed/cot/trolley spaces in the day-care unit in relation to bed/cot spaces in the in-patient ward(s).

Treatment room

4.182 A treatment room is required for clinical investigations and treatments which cannot appropriately be carried out in consulting/ examination rooms and do not need facilities such as an endoscopy room or operating theatre.

4.183 The treatment room is intended for use for most specialties. Procedures may be carried out there:

a. by doctors, nurses and appropriate other staff;

b. with one or two parents/carers in attendance;

c. with the patient lying on an examination couch or a trolley, sitting in a chair, or standing.

Access to the patient is required from all sides. There should be space for a dressing trolley, a mobile examination lamp, and a wheelchair. Clinical hand-wash facilities are essential.

4.184 Certain clinical procedures require the use of cryosurgical equipment. This equipment may utilise liquid nitrogen, liquid carbon dioxide, high pressure carbon dioxide, or high pressure nitrous oxide. Exhaust from ventilation systems must be discharged safely to avoid ingestion by neighbouring supply ventilation or entry into adjacent windows of naturally ventilated spaces.

4.185 Storage space is required where sterile packs, lotions and drugs for immediate use are stored and prepared for use, and where trolleys can be prepared for use and/or held. A worksurface is required.

4.186 The treatment room should:

a. have easy access from the bed spaces;

b. be designed and located so as to achieve maximum visual and auditory privacy. Consideration should be given to:

   (i) its distance from, and position in relation to, patients in bed spaces;

   (ii) sound attenuation.

Mechanical ventilation should be provided to control the movement of air to and from other spaces.

4.187 The walls and ceiling should be appropriately decorated for children, bearing in mind the need to maintain clinically acceptable conditions.

Sanitary facilities

4.188 Two WCs with hand-wash facilities are required for use by patients and parents/carers.

Beverage bay

4.189 A beverage bay where staff and/or parents/carers can prepare light refreshments and beverages should be provided. Facilities for storing crockery and cutlery and for washing-up, and a refrigerator, are required. Consideration may be given to installing a snack/beverage vending machine.

Dirty utility room

4.190 A dirty utility room is required for the day-care unit similar to that included in the in-patient ward and described in paragraphs 4.138 to 4.143.

4.191 The activities, facilities and relationships of the dirty utility room in a day-care unit will be similar to those of the dirty utility room in an in-patient ward. However, a dirty utility room in a day-care unit will serve fewer beds for a shorter period of time and, therefore, is likely to require less storage space.

Switch cupboard

4.192 A switch cupboard, with lockable doors, housing the main isolators and distribution fuse switchgear for the day-care unit should be:

a. accessible directly from a circulation area (access space may be part of the circulation area);

b. sited away from water services;

c. lockable.

4.193 The switch cupboard, where possible, should be sited within the unit. There should be clear and safe access for maintenance staff and care should be taken to ensure that safety is not compromised, during maintenance, from passing traffic or the opening of adjacent doors.

5.0 Other general functional and design requirements

Introduction

5.1 This chapter contains additional guidance on aspects of function and design which are common to all health buildings.

Statutory and other requirements, including Crown immunities

5.2 The guidance takes account, as far as possible, of all statutory and other requirements in force at the time of publication, but health authorities and trusts are reminded of their responsibility for ensuring compliance with all relevant statutes, regulations, codes and standards. Advice on this is given in HC (88)60/HC(FP) (88)29 (in Wales, WHC (89)20).

5.3 With the general removal of Crown immunity, building and planning laws are legally enforceable on the NHS. Guidance on the removal of Crown immunity is given in HN (90)27/LASSL (90)15 (in Wales, WHC (91)4) in respect of a wide range of legislation.

Disabled people

5.4 It is essential to ensure that suitable access and facilities are provided for disabled people who have problems of mobility or orientation. This includes, besides people who are wheelchair-bound, those who for any reason have difficulty in walking and those with a sensory handicap such as a visual or hearing impairment. Authorities are reminded of the need to comply with the provisions of:

a. the Chronically Sick and Disabled Persons Act 1970;

b. the Chronically Sick and Disabled Persons (Amendment) Act 1976;

c. the Disabled Persons Act 1981;

d. the Disabled Persons (Services, Consultation and Representation) Act 1986;

e. the Building (Disabled People) Regulations 1991 (1992 Edition).

5.5 Attention is also drawn to BS5810:1979 'Access for the Disabled to Buildings' (under review). One of the effects of the 1981 Act is to apply this British Standard to premises covered by the 1970 Act, which includes those open to the public. Practical guidance for complying with the Building (Disabled People) Regulations is issued by the Department of the Environment under Approved Document M: 'Access for the Disabled'.

5.6 Project teams are encouraged to refer to HBN 40 – 'Common activity spaces Volume 4: Designing for disabled people'. This gives guidance and a set of ergonomic data sheets on access, space and equipment relating to disabled people in health buildings.

5.7 It is recommended that project teams consult local representatives of disabled people with regard to the planning of spaces used by patients and escorts.

5.8 If public telephones are provided, the telephone handset should be fitted with an inductive coupler to assist people using a hearing aid.

Fire precautions

5.9 Project teams should be familiar with Firecode which contains the Department's policy and technical guidance on fire safety in hospitals and other NHS premises. Firecode includes:

a. 'Fire precautions in new hospitals' – HTM 81 and its Supplement 1;

b. 'Alarm and detection systems' – HTM 82;

c. 'Fire safety in healthcare premises: – General fire precautions' – HTM 83;

d. 'Fire precautions in existing hospitals' – HTM 85;

e. 'Fire risk assessment in hospitals' – HTM 86;

f. 'Textiles and furniture' – HTM 87.

In addition to the above technical memoranda, the Fire Precaution Note series provides guidance on specialist aspects of fire precautions.

5.10 It is important to establish at an early stage those fire precautions which affect the design, configuration and structure of the project. At the appropriate stage of the design process the architect and engineer should discuss their proposals with the project team, and an operational fire safety strategy for the design in terms of operation (staff responsibilities), equipment provision, and building and engineering layouts, should be agreed.

5.11 An essential part of this strategy will be the emergency plan which should be prepared prior to the occupation of the department. This should include:

- means for raising the alarm in case of fire;

- the number of staff on duty and the availability of additional staff to assist;
- the type of patients to be evacuated;
- the most appropriate methods of patient evacuation, considering the condition of the patients and the location and configuration of escape routes from the department;
- the areas of potential refuge (initial place of safety);
- means for first aid fire-fighting;
- periodic and formally recorded staff training in all these matters.

5.12 The emergency plan should be continually monitored and reviewed whenever there is a significant change in the management, staffing or internal layout of the department.

Smoking

5.13 NHSME circular HSG (92)41 dated October 1992 – 'Towards smoke-free NHS premises' promulgated Government policy set out in the 'Health of the Nation' White Paper and required NHS authorities and provider units to implement policies so that the NHS became virtually smoke-free by 31 May 1993. The circular advises that a limited number of separate smoking rooms should be provided for staff who cannot give up smoking, where necessary, and for patients who cannot stop smoking.

5.14 Special provision has not been made in this HBN for patients, parents/carers or staff who wish to smoke. Project teams may wish to designate rooms where people may smoke.

Building Components

5.15 The Building Components Database consists of a series of Health Technical Memoranda (HTMs) which provides specification and design guidance on building components for health buildings which are not adequately covered by current British Standards. No firms or products are listed. The numbers and titles of the HTMs in the series are listed in the bibliography.

Upgrading or adaptations of existing buildings

5.16 The standards set out in this guidance essentially apply to the provision of accommodation by new building. However, the principles are equally valid and should be applied, so far as is reasonably practicable, when existing accommodation is being upgraded or new accommodation is being constructed within an existing building which may previously have been used for other purposes. Compromises may have to be made between Health Building Note (HBN) standards and what is possible.

5.17 Before a decision is made to carry out an upgrading project, consideration must be given to the long-term strategy for the service, the space required for the new service, and the size of the existing building. Regard must also be paid to
the orientation and aspect of the building, whether or not key HBN requirements can be met: for example, the need for accommodation with ground-level access, and the adequacy and location of all necessary support services

5.18 If a prima facie case for upgrading emerges, the functional and physical condition of the existing building should be thoroughly examined. The check of physical and other aspects of existing buildings should include:

- availability of space for alterations and additions;
- type of construction;
- insulation;
- age of the buildings, condition of fabric, for example, external and internal walls, floors, roofs, doors and windows, which may be determined by a condition survey;
- life expectancy and adequacy of engineering services, ease of access and facility for installation of new wiring, pipework and ducts, if required;
- the height of ceilings. Operating theatres, for example, require a minimum ceiling height. High ceilings do not necessarily call for the installation of false ceilings, which are costly and often impair natural ventilation;
- changes of floor levels to obviate hazards to disabled people;
- fire precautions;
- physical constraints to adaptation such as load-bearing walls and columns.

5.19 When comparing the cost of upgrading or adapting an existing building to that of a new building, due allowance, in addition to the building cost, must be made for the cost of relocating people, demolition, salvage costs, disruption of services in a phased project, and the temporary effects on running costs of any impaired functioning of areas affected by upgrading.

5.20 The cost of upgrading work should conform to the guidelines indicated in the Department's WKO letter (81)4 (in Wales, AWO (81)8). Those guidelines take into consideration the estimated life of the existing building and the difference in cost between upgrading a building and new building.

6.0 Engineering services

Introduction

6.1 This chapter describes the engineering services contained within a comprehensive children's department and how they integrate with the engineering systems serving the whole site. This guidance should not inhibit the design solution, but will acquaint the engineering members of the multidisciplinary design team with the design criteria and material specification needed to meet the functional requirements.

NHS Model Engineering Specifications

6.2 A series of model specifications for specialised engineering services in health-care buildings has been issued nationally by NHS Estates and is sufficiently flexible to meet local needs. The cost allowance is based on the qualities of material and workmanship described in the relevant parts of the model specifications. The design and installation requirements of all the engineering systems should comply with 'The control of legionellae in healthcare premises – a code of practice' and the relevant sections of the model engineering specification.

Economy

6.3 Engineering services should be designed to obtain the optimum benefits from the capital invested. The project design engineer should therefore ensure:

a. economy in provision, consistent with meeting the functional requirements and maintaining good standards;

b. optimum benefit from the total financial resources these services are likely to absorb during their lifetime;

c. adoption of environmental and energy efficient systems.

6.4 Where alternative design solutions are available, their consequential capital and revenue costs should be compared using option appraisal techniques such as BCR, internal rate of return, or simple payback, etc.

6.5 Heat conversion and distribution losses can be significant where buildings are located remote from the energy centre. The economic appraisal of alternative locations and design solutions should take this factor into account.

6.6 In any new project, consideration should be given to including a building energy management system. Metering facilities should be included to enable some measure of energy accounting to be exercised within the department.

6.7 In view of the increasing cost of energy, the project team should consider the economic viability of heat recovery from the mechanical engineering systems. Electrical installation should be designed to utilise economical equipment and adopt automatic switching control where appropriate. Designers should also ensure that services which use energy should do so efficiently.

Maximum demands

6.8 The estimated maximum demand and storage requirement (where appropriate) for each engineering service will need to be assessed individually to take account of the size and shape, geographical location, operational policies and intensity of use of the department. NHS Estates may provide estimates of the maximum demand and storage requirements for a specific project if required by the project team.

Space for plant and services

6.9 Space for mechanical and electrical plant and services should provide:

a. easy and safe means of access from circulation rather than working areas, and be protected as far as possible from unauthorised entry;

b. space for frequent inspections and maintenance;

c. adequate access for eventual removal and replacement of plant.

6.10 Recommended spatial requirements for mechanical, electrical and public health engineering services are contained in HTM 23. The information in this HTM is specifically intended for use during the initial planning stages when precise dimensional details of plant are not available.

6.11 The distribution of mechanical and electrical services to final points of use should, wherever possible, be concealed in walls and above ceilings. Heat emitters should be contained within a 200 mm-wide perimeter zone under window sills and critical dimensions should be taken from the boundary of this zone.

6.12 The 200 mm zone includes the floor area occupied by minor vertical engineering ducts and is included in the building circulation allowance.

6.13 Primary engineering distribution control and isolation devices should be:

a. located in circulation areas rather than working areas to avoid or minimise disruption to clinical work;

b. protected against unauthorised operation, for example, switchgear and fuse-boards should be housed in secure cupboards;

c. clearly identified for service and zone visible, and easily accessible for staff operation where appropriate.

Activity data

6.14 Environmental and engineering technical data and equipment details are described in the activity data sheets (see Chapter 8). Reference should be made to the activity data sheets for equipment, and environmental data required within the space.

Safety

6.15 Section 6 of the Health and Safety at Work etc Act 1974, as amended by Schedule 3 of the Consumer Protection Act 1987, imposes statutory duties on all persons who design, manufacture, import, supply, install or erect "articles for use at work". One of the requirements of this section is to ensure, so far as is reasonably practicable, that the article is designed and constructed so that it will be safe and without risks to health at all times when it is being set, used, cleaned or maintained by a person at work. All parts of engineering systems are covered by the term "articles for use at work".

Fire safety

6.16 Firecode contains the Department's policy and technical guidance on fire safety in hospitals and other NHS premises. Firecode includes:

- HTM 81 – 'Fire precautions in new hospitals' and its Supplement 1;
- HTM 82 – 'Alarm and detection systems';
- HTM 83 – 'Fire safety in healthcare premises – General fire precautions';
- HTM 85 – 'Fire precautions in existing hospitals';
- HTM 86 – 'Fire risk assessment in hospitals'.

Engineering services commissioning (testing and validation)

6.17 The engineering services should be commissioned in accordance with the validation and verification methods identified in the latest HTMs. HTM 17 describes the requirements which should be included in the contract documents. Flow measurement and proportional balancing of air and water systems require adequate test facilities, for example, orifice plates, venturi valves, etc. The measurement devices should be incorporated at the design stage.

MECHANICAL SERVICES

6.18 The mechanical services include the provision of heating, ventilation, hot and cold water supplies, medical gases and medical vacuum. For department cost allowance purposes the distribution of these services is deemed to commence at their point of entry into the department and includes pipework, fittings, controls and connections to equipment and outlets.

6.19 For environmental requirements in individual spaces, reference should be made to the activity data sheets. Recommended room temperatures, air-change rates, hot water service temperatures, etc, are grouped under "Technical Design Data" on each activity data A-Sheet. The activity data B-Sheets give the disposition of engineering outlets for the activities described.

6.20 Independent temperature control within a range of 21°C to 24°C may be required within areas in which a patient may be undressed.

6.21 Space heating may be required outside the normal heating season and the heating system should be designed accordingly.

Heating

6.22 Spaces heated by low-pressure hot water systems should use low surface-temperature radiators with a maximum surface temperature of 43°C. The project team may prefer to reduce the maximum temperature: however, this would increase the surface area required to meet the heat load within the space. Reference should be made to the Health Guidance Note (HGN) '"Safe" hot water and surface temperatures' for further advice on this matter. Alternative methods of providing the space heating may be considered by the designer. These should be priced against the radiator options. Information regarding the construction of heat emitters, including their mechanical and thermal characteristics, methods of mounting and fixing variations in pipe connections, problems of cleaning and maintenance, control of output, and aspects of safety, are given in Engineering Data Sheet DN4.

6.23 Radiators should normally be located under windows or against exposed walls with sufficient clear space (150 mm) between the top of the radiator and the window sill to prevent curtains reducing the output. There should be adequate space below (150 to 200 mm) to allow cleaning machinery to be used. Where a radiator is located on an external wall, insulation should be provided behind the radiator to reduce the rate of heat transmission through the building fabric.

6.24 All radiators should be fitted with thermostatic radiator valves. These should be of robust construction and selected to match the temperature and pressure characteristics of the heating system. The thermostatic head, incorporating a tamper-proof facility for pre-setting maximum and minimum room temperature, should be controlled via a sensor located integrally or remotely as appropriate. Frost protection should be provided at its minimum setting.

6.25 Radiators may also be used to offset building-fabric heat-loss in mechanically ventilated spaces. The system should be designed to ensure that the heating and ventilation systems are working in tandem and not causing the space served to be overheated.

6.26 A compensated low-temperature hot water heating circuit should be provided to offset the building-fabric heat losses, air infiltration, and to maintain the internal design temperature specified on the activity data A-Sheets.

6.27 Accommodation normally used during the daytime only should be equipped with time controls and programmed to accommodate its working hours. The control system should preferably incorporate "optimum-start" and be used to set back the space temperature to an anti-condensation level of approximately 10°C when the accommodation is closed (actual set-back to be determined from local trials). To allow for occasional abnormal hours of working, manual override facilities with automatic reset after a predetermined period should be provided.

Ventilation

6.30 Subject to clinical usage, recirculation of air may be adopted on some systems serving clean areas but a minimum fresh air supply should be maintained to the areas served by the system. If recirculation is not allowed, alternative methods of reducing energy consumption should be considered such as recuperator and run-around coils.

6.31 Recommendations for the ventilation of individual spaces in this department are shown on activity data A-Sheets. Mechanical ventilation systems are expensive in terms of capital and running costs and planning solutions should be sought which take maximum advantage of natural ventilation.

6.32 It is acknowledged that planning constraints imposed by the building shape and/or functional relationships of specific spaces will invariably result in some measure of deep-planning. Ventilation costs can however be minimised by ensuring that wherever practicable core areas are reserved for rooms that require mechanical ventilation irrespective of their location (internal or peripheral). Examples are sanitary facilities, dirty utility room, beverage preparation areas and rooms where clinical or functional requirements have specific environmental needs, and where, for reasons of privacy and absence of solar gain, etc, windowless accommodation is acceptable. Other spaces appropriate to core areas are those which have only transient occupation and therefore require little or no mechanical ventilation. Examples are circulation and storage areas.

6.33 Air movement induced by mechanical ventilation should be from clean to dirty areas, where these can be defined. The design should allow for an adequate flow of air into any space having only mechanical extract ventilation, via transfer grilles in doors or walls. Such arrangements, however, should avoid the introduction of untempered air and should not prejudice the requirements of fire safety or privacy.

6.34 The mechanical ventilation system should be designed to ensure that both supply and extract systems are generally in balance, taking due account of infiltration, where appropriate. The supply air volume may be 80% of the extract air volume.

6.35 Fresh air should be introduced via a low-velocity system and should be tempered and filtered before being distributed via high-level outlets. Diffusers and grilles should be located to achieve uniform air distribution within the space, without causing discomfort to patients.

6.36 Ventilation supply plant should include air filters having a 95% efficiency against BS6540:Part 1 Test Dust Number 2 (Eurovent Grade EU3). In urban or other areas of high atmospheric pollution, a higher standard of filtration may be economically justified to reduce the level of staining to internal finishes. Filters must be readily accessible for replacement and should be provided with a pressure differential indicator and alarm.

6.37 A separate extract system will be required for all "dirty" areas. It should operate continuously throughout the day and night. A dual motor fan unit with an automatic changeover facility should be provided.

6.38 External discharge arrangements for extract systems should be protected against back pressure from adverse wind effects and should be located to avoid reintroduction of exhausted air into this or adjacent buildings through air intakes and windows.

Single-bed rooms

6.39 As a contribution to the containment of air-borne infection, a supply and extract system should be provided in two of the single-bed rooms in the in-patient ward. The system must allow for each room to be maintained at either a positive or negative pressure relative to adjacent rooms and the corridor. A suitable arrangement would provide supply air at a constant volume extracting via the en-suite toilets, thus ensuring that the toilet is always maintained at a negative pressure relative to the bed room by extracting volume in excess of that supplied to the bed room coupled with a volume control which can reduce the rate of extract below the supply duty when a positive pressure is required in the bed room. The degree of clinical isolation required does not justify an air-lock or the high flow rate necessary to prevent escape or infiltration when the door is briefly opened. The supply air temperature to the rooms should be controlled from detectors in the room modulating a control valve serving a zone heater battery. The project team may provide facilities for patients with respiratory problems, including the filtration, temperature and humidification control required to a bed room within the in-patient ward. The cost of this facility is not included in the DCA for the department.

6.40 Within each single-bed room used to "isolate" patients, plant status and temperature indication, together with a means of adjusting the set points, should be provided. Care should be taken to ensure that these room-mounted controls are capable of being cleaned. Ideally, they should be flush-mounted with no dust-collecting recesses.

Cooling

6.41 Where it can be demonstrated that internal summertime temperatures will exceed 25°C due to unavoidable internal gains or local environmental conditions, the project team may wish to consider the provision of supplementary mechanical ventilation and/or cooling. This must only be considered when all other means of reducing the temperature, such as solar shading and switching of lights, have been assessed.

6.42 Where deep-planning of continuously occupied spaces is unavoidable, there will be occasions when acceptable levels of comfort can be maintained only by air-cooling. Planning solutions of this type will be exceptional and no provision for cooling plant has been included in the cost allowance. Where the facility is required, the plant capacity should be limited to that necessary to maintain an internal temperature of 25°C when the external ambient is 28°C. Air-cooled condensers must be used for heat rejection from refrigeration plant.

6.43 If humidification is found to be necessary, then steam is the recommended medium and should be generated locally to avoid distribution losses. Potable water fed from a tank supply should be used. Water treatment may be necessary.

Plant control and indication

6.44 The ventilation system serving some rooms may be turned off during periods of non-use. This should be taken into consideration when assessing the feasibility of providing independent ventilation plant for each area. The design should ensure, however, that the overall supply and extract systems remain in balance when one or more rooms are switched out of use. These systems may need to be reinstated in advance of occupation. This can be accomplished by the building management system or sensors which detect the presence of staff within the particular area. The system should be automatically reinstated if the space temperature falls below 10°C. Under these conditions, humidification should not be provided. It is not considered necessary to set an upper temperature limit at which the ventilation should be reinstated.

Hot and cold water services

6.45 The requirements for the control of legionnellae bacteria in hot and cold water systems are set out in 'The control of legionellae in healthcare premises – a code of practice'. Pipework routes and installation should reflect the need to comply with these requirements.

6.46 Guidance on the design and installation of cold water supply and distribution systems is contained in HTM 2027 and the HGN '"Safe" hot water and surface temperatures'.

6.47 All cold-water pipework, valves and fittings should be economically insulated and vapour-sealed to protect against frost, surface condensation and heat gain. All cold-water outlets must be fed from a potable supply.

6.48 The domestic hot water supply should normally be taken from the general hospital calorifier installation at a minimum outflow temperature of 60°C ± 2.5°C and distributed to all outlets so that the return temperature at the calorifier is not less than 50°C. See HGN – '"Safe" hot water and surface temperatures'.

6.49 Hot water for patient hand-washing and all baths, showers and bidets should be provided with individual local thermostatic mixing valves. The upper temperature limit will be 43°C, except for bidets which should be pre-set and locked to provide a blended water temperature not exceeding 37°C. The mixing valve should be of a type that is unaffected by changes in water pressure and should 'fail-safe', that is, automatically close the hot water supply if the cold water supply fails. The provision of one mixing valve to supply a group of baths or showers is not acceptable. Vigilance will still be required to ensure that

vulnerable patients using wash basins or sinks are not in prolonged contact with water at a temperature which could be marginally in excess of 52°C. Outlet fittings for hand-wash basins and sinks are shown on activity data B-Sheets. Staff hand-washing should be controlled to 43°C in general: this may be achieved by the use of single-lever manual mixing taps giving a control range of 35°C to 45°C.

Piped medical gases and vacuum

6.50 General guidance on piped medical gas systems and gas storage is contained in HTM 2022. Details of the numbers and types of terminals required for the areas can be found in the appropriate activity data A-Sheets listed in Chapter 8.

6.51 The supply to the department and to each area should be capable of isolation at the departmental entrance and in the proximity of the staff base.

6.52 Piped medical gas and medical vacuum alarm systems should be provided in accordance with HTM 2022 (including any revisions and subsequent amendments). Local alarm panels should be provided in the in-patient areas at the department, monitoring the conditions within the pipeline immediately following the department isolating valves. Anaesthetic gas scavenging is not required. Cryosurgical exhaust from high-pressure nitrous oxide systems should be discharged via a pipe taken externally to a position protected from back-draughts and clear of any openings to the building to avoid reintroduction of the exhaust gases into the building, and should comply with COSHH Regulations.

Fire-fighting equipment

6.53 Fire-fighting equipment should consist of hose-reels and portable fire extinguishers and should be positioned so that adequate cover is given to the whole interior of the department. Hose-reels, in accordance with BS5306:Part 1 and usually with 30 m of hose should be located so that the jet of water from the fully extended hose is capable of reaching every point of the floor area without interruption after due allowance is made for furniture and fittings. In addition to hose-reels, 9-litre water extinguishers should be provided on the basis of one extinguisher per 200 sq m of floor area with a minimum provision of two extinguishers per fire compartment. Carbon dioxide extinguishers should be provided to cover electrical risks but for other risks, eg, ignited liquid or gas, either carbon dioxide or dry-powder extinguishers are appropriate. Extinguishers should comply with BS5423: further guidance concerning their selection and use is given in HTM 81.

ELECTRICAL SERVICES

6.54 The installation should comply in all respects with the current IEE wiring Regulations for Electrical Installations and conform to the requirements of relevant Health Technical Memoranda together with any specific regulations or British Standards relevant to the service concerned.

6.55 The point of entry for the electrical supply should be a dedicated switchroom or switch cupboard housing the main switches and protective devices and general electrical distribution equipment. This space should also be the distribution centre for subsidiary LV and ELV electrical services. Whenever possible, equipment should be mounted at a height which gives easy access from a standing position. Switchgear should be lockable in the "off" position.

6.56 The electrical installation will include main intake switchgear and wiring and equipment for lighting, power and environmental plant. Split essential and non-essential distribution systems should be installed throughout the department in line with HTM guidance and as identified on the activity data A-Sheets. Extensions from the hospital central systems for telecommunications, computer facilities, fire alarms , security alarms, medical gas alarms, building management control systems, radio and television distribution, clock systems, patient monitoring equipment and staff location services, together with separate call systems, will also be required. These installations should comply in all respects with the current Regulations for Electrical Installations and conform to the requirements of HTM 2007.

6.57 Reference should be made to the activity data sheets for the recommended levels of internal illumination, disposition of outlets for power, telephones, data, call systems and clocks, etc, in individual spaces.

6.58 The electrical installation in occupied areas should generally be concealed using PVC insulated cable and screwed galvanised steel conduit, cable tray or trunking but, in certain circumstances, mineral-insulated metal-sheathed cables may be necessary. External installations should use PVC-insulated cables in galvanised screwed-steel conduit with waterproof fittings or PVC-armoured cable. Where economical, consideration should be given to installing XLPE or halogen-free low-smoke and fume cables, particularly for main distribution cabling runs along main escape routes. Final circuit wiring will generally be PVC-insulated single-core copper cable or PVC-served mineral-insulated cables (MICV) as appropriate.

Electrical interference

6.59 Care should be taken to avoid mains-borne interference and electrical radio frequency interference

affecting physiological monitoring equipment, computers and other electronic equipment used here or elsewhere on the site. Guidance on the avoidance and abatement of electrical interference is contained in HTM 2014.

6.60 Fluorescent luminaires should comply with BS5394.

Lighting

6.61 The design of lighting levels and photometric criteria for the various functional spaces will be in accordance with the CIBSE Lighting Guide for Hospitals and Health Care Buildings and as detailed on the activity data A-Sheets.

6.62 Luminaires should generally be of low-energy type with UV stable lighting controllers and be manufactured and tested in accordance with the requirements specified in the relevant sections of BS4533. Power factor correction may be required to ensure that the power factor is maintained at not less than 0.95 at all times. The location of the luminaires should afford ready access for lamp changing and maintenance, but with the overriding requirement that the recommended standard of illuminance detailed in the activity data A-Sheets is provided to the task area. The lighting of corridors, stairways and other circulation areas, which generally are areas not covered by activity data A-Sheets, should be in accordance with the guidance contained in HBN 40.

6.63 The lighting solution must ensure that the effect of glare is minimised and, where the medical appreciation of the skin colour of a patient is important, the lamps should be of a type which has the appropriate colour-rendering properties. The lighting design should take into account the need to contribute to an interesting and stimulating environment within the bedded areas, the type of luminaires satisfactorily reflecting the environment in which they are located. The control of lighting in all areas must be versatile in order to provide variation in illumination options. In areas where computer terminals are to be used the lighting must be designed to avoid bright reflections on the VDT screen and ensure the display is legible. It must also comply with the European directive relating to VDTs.

6.64 Essential and non-essential circuits should be provided in patient areas and important operational areas and all escape routes. Independent emergency lighting should be provided in all hazardous areas such as staircases, etc. Emergency lighting should be fed on a separate circuit in escape routes to the circuit serving adjoining rooms. Consideration must be given to providing automatic control of the lighting systems using occupancy detectors, photocells, etc, where these satisfy the functional requirements and can be economically justified.

6.65 Luminaires in day rooms, play areas, dining rooms and staff rooms should be decorative/domestic in character, utilising low-energy fluorescent light sources, and should harmonise with the room decor. Intermittently and infrequently used luminaires may be fitted with compact low-energy fluorescent lamps. The use of incandescent lamps should be the exception.

Lighting in bed areas

6.66 The standard of illumination provided at the bed-head (at normal bed height) by the general lighting should be 30 to 50 lux. The illumination in the centre of the in-patient ward (that is, the walking space between bed-ends) should not be less than 100 lux. Additionally, a ceiling or high-level wall-mounted fixed-arm luminaire should be located above each bedhead to provide an illuminance of 150 lux for reading purposes. The shades of wall-mounted luminaries in multi-bed rooms may be adjustable but movement should be limited to prevent disturbance to other patients and the luminaries should comply with BS4533, particularly Section 1.2 concerning limiting temperatures. The controlling switch for the fitting should be incorporated in the bed-head unit and/or in the patient/nurse call hand unit. The brightness level should be controlled by a three- position ON/OFF/DIM switch located at the bedhead unit position. As adjustable bed-head luminaires are prone to misuse by young patients, the project team may wish to consider providing dedicated task lighting by means of ceiling-mounted fittings.

6.67 Night lighting, utilising low-energy lamps incorporated in independently mounted luminaires having the requisite photometric requirements as laid down in BS4533, should be provided to aim an indirect illumination of 0.1 lux on the pillow and, for the rest of the bed area, just sufficient light to enable staff to move around safely. Safety lighting should be provided on primary escape routes in accordance with HTM 2011 and BS5266.

6.68 The lighting solution should avoid glare from general lighting luminaires: the lamps should be screened from the direct vision of a patient in bed to a limiting luminance, as specified for alternative types of installation in the CIBSE lighting guide for health care buildings, and in other areas where patients are undergoing treatment or examination or in transit. These restrictions should also be applied to luminaries in corridors and circulation spaces which are visible from beds through unscreened glazing.

Treatment rooms

6.69 A portable luminaire with a fully-enclosed lamp-housing should be provided, or ceiling- or wall-mounted double-arm examination luminaire located above the couch. The luminaire should be adjustable in pitch and rotation to allow the beam to be directed locally and should provide reasonably shadow-free illumination with

negligible heat development. Recommended illuminances are 100 lux at the couch from the examination luminaire and a general illumination of 400 lux for the performance of ancillary tasks. The luminaire should be served from an ELV source (24 V/50 V).

Bed-head units

6.70 A flush-mounted bed-head unit should be provided for each bed position in the in-patient ward and day-care unit. It should incorporate a twin 13 amp switched socket-outlet and a patient/nurse call, re-set switch, staff/staff emergency call, master control of reading light, radio/television sound reception facilities and a multi-way socket for a patient hand set. Further guidance is given in Engineering Data Sheets DU 1 17/7 and DU 21/1 and HTM 2015.

6.71 Mobile examination luminaires, where provided, should operate at extra-low voltage, be totally enclosed and be equipped with a heat filter. The temperature of external surfaces should be such as to avoid injury to patients and staff. The luminaries should comply with the requirements of BS4533:Part 102.2.

6.72 Patient monitoring may be provided as identified on the activity data A-Sheets. At the bed space location requiring monitoring facilities, adjustable cantilever swivel brackets for mounting and supporting the monitors should be installed, together with a data terminal outlet and a 13 amp filtered switched socket-outlet mounted adjacent. An independent galvanised steel conduit/trunking system should be installed interconnecting the various bed-side monitor terminal outlets with the central monitoring position.

6.73 The data terminal outlet blank plates should be labelled "Cardiac Monitor".

6.74 The central monitoring position should contain the central processing unit for the monitoring system, together with freestanding desk-top mounted multi-channel display monitors. Adequate provision, therefore, must be allowed for relevant power sockets, ventilation requirements, and data cable interconnections between the various items of equipment.

Controlled Drugs cupboard

6.75 Controlled Drugs cupboards having an integral light operated via a micro-switch fitted to the Dangerous Drug cupboard door should be provided in accordance with HC(77) 16 (in Wales, WHN(77)32). It is recommended that the system be served from a 24 volt nurse call system power supply unit with remote indicator lamps located above the door of the room containing the cupboard and at the corresponding staff base and, after working hours, in a continuously-manned area external to the functional part concerned. All lamps should be interlocked with the cupboard to give visual indication when the cupboard is unlocked.

6.76 An indicating lamp denoting that the circuit is energised should be fitted to each cupboard. The circuits for all these indicating lamps should be derived from the essential supply. For further information, see HTM 63 `Fitted storage systems' and its associated specification for electrical services. The cupboards should be in accordance with BS2881.

Small power installation and accessories

6.77 Sufficient 13 amp switched and shuttered socket-outlets, connected to ring or spur circuits, should be provided to supply all portable appliances likely to be used simultaneously. The installation of twin outlets should be considered where activities occur in juxtaposition.

6.78 To enable domestic cleaning appliances with flexible leads (nine metres long) to operate over the whole of the accommodation, switched socket-outlets should be provided in corridors, and in individual rooms where considered necessary.

6.79 Electrical services to cookers, refrigerators, dishwashers, hi-lo baths, bedpan washers or macerators, catering and electrical therapy equipment, etc, should be provided as outlined in the activity data A-Sheets, taking into consideration the equipment manufacturers' recommendations and serviceability. Particular consideration should be given to the co-ordination of the various accessories and outlets to provide a practical and ergonomic solution. Food trolleys, or regeneration trolleys if required, should be provided with suitably labelled RCD protected (30 mA sensitivity) 32 amp TPN switched socket-outlets in the in-patient ward and may, subject to project requirements, also be required in the day-care unit and the child development centre.

6.80 Switches for isolation purposes should be provided adjacent to all engineering plant and equipment for use by maintenance staff. Each local isolation device will be appropriately labelled to identify the equipment being served.

6.81 Heating appliances and equipment capable of automatic regulation/control should have indicator lights to show when they are energised. Such indicators should be contained in the control panel of the apparatus, in the control switch or in the socket-outlet from which the apparatus derives its supply.

6.82 The electrical supply connections to electro-medical equipment should comply with BS5724.

6.83 Advice on the power supply and requirements for mobile radiodiagnostic equipment is contained in HTM 2007.

Emergency electrical supplies

6.84 Guidance on emergency electricity supplies is contained in HTM 2011.

Security systems

6.85 General security monitoring should be provided as outlined in the whole hospital policy. A door-security intercommunication system is required between the in-patient ward, main and secondary entrances and the night-time monitoring position to prevent unauthorised entry to the ward, whilst permitting free movement of staff. The staff access system may be provided by a hands-free access control using low-frequency radio signalling techniques to activate a door release mechanism to the in-patient ward. A system should be provided for verbal communication with, and an electro-magnetically operated door lock to be controlled from, the monitoring position as defined by the project team, and should include CCTV observation of the entrance areas. Subject to local policy, a personal attack system may also be required by staff working within the in-patient ward. The system should employ radio signalling techniques: when activated the system should identify by means of local visual and audible signals in selected areas that assistance is required. Simultaneously, security personnel would be advised of the incident by a message transmitted via a paging system. Alternatively, an intruder alarm system (panic buttons) to enable staff to call assistance from outside the department in case of an intruder or incident may be provided at the monitoring position/staff base. The system would comprise a pull/push switch to activate local visual/sounder signals, together with remote sounders in selected areas elsewhere in the hospital.

6.86 An override, located inside the secondary entrance, should provide staff with a convenient exit route for normal work or in the event of fire. The lock should disengage on initiation of the fire alarm system.

Staff location system

6.87 The hospital staff location system should be extended to include this department.

Patient/nurse and staff/staff call systems

6.88 Patient/staff call points should comprise a push button or pull cord, reassurance lamp and re-set unit. The audible alarm signal initiated by patients should operate for one second at ten-second intervals with corresponding lamps lit continuously until cancelled.

6.89 A visual and audible indication of operation should be provided at the appropriate staff base/reception desk to give responding staff unambiguous identification of the call source.

6.90 In the in-patient ward and day-care unit, patient/staff call points should be located at each bed position, in play/day/dining spaces and in all patient sanitary areas. They should comprise a push-button, reassurance lamp and re-set switch. The call points in these areas should also include a staff/staff call facility. A staff/staff call point should also be provided in all treatment rooms. A visual and audible indication of operation should be provided at the monitoring positions or staff base to give responding staff unambiguous identification of the call type and source. Further guidance is given in HTM 2015. Hospital policy may also require a staff/staff emergency alarm to be repeated in adjacent accommodation or transferred to a centrally-manned point.

6.91 In the out-patient unit, patient/staff call points with a staff/staff call facility will be required in all patient toilets and a staff/staff call point will be required in the treatment room and all consulting/examination rooms. An indication of operation similar to that at the staff base in the in-patient ward should be provided at the reception desk.

6.92 In the child development centre, a staff/staff call facility, with indication at the reception desk, will be required in each assessment/observation/remedial therapy room and in all patient sanitary areas.

Next-patient call system (out-patients suite)

6.93 Some clinicians may prefer to call their patients personally but generally a simple and unobtrusive visual call system will be required. This should comprise an illuminated indicator panel and warning buzzer of subdued tone located at the reception desk.

6.94 All call systems should operate at extra-low voltage. Further guidance is contained in engineering data sheet DU3 and HTM 2020 and HTM 2015.

Fire alarm and detecting system

6.95 A monitored open-circuit system which allows the connection of break-glass call points and automatic detectors (if required) is recommended. The choice of detectors is a complex matter and is dealt with in the guidance already mentioned in paragraph 6.16. With the exception of the treatment rooms (visual alarm), audible signals will normally be adequate but it should be noted that sound levels require checking for audibility after full occupancy of the building and after any automatic door detentes have been released (HTM 82, Appendix 5).

Wireways for telephones

6.96 Central telephone facilities for internal and external calls will normally be available and should be extended to serve this department. Telephones will normally be of the desk pattern. In some spaces, they may need to be fitted with indicating call lights, bells or buzzers of subdued tone and muting switches.

6.97 Direct inward access (DIA) lines may be provided to telephone instruments located at reception desks for patients' appointments: this is a local project team decision.

6.98 Intercommunication between various spaces in the department can be provided by the telephone system. Abbreviated dialling can be used for a range of frequently-called extension numbers.

6.99 One or more fixed payphones should be provided in the foyer of the departmental entrance. Payphone socket-outlets should be provided in the single-bed and multi-bed rooms in the in-patient ward. Consideration should be given to use of a payphone by a person in a wheelchair.

6.100 More comprehensive guidance on telephone systems is contained in HBN 48.

Wireways for data links

6.101 Wireways will be required for cables to interconnect electronic equipment. The extent to which these wireways should link all workstations in the department and the main hospital system or elsewhere will depend on the local policy for automatic data processing.

Electric clocks

6.103 Clocks should operate in conjunction with a master clock system or quartz-controlled battery-operated type, having 24-hour markings and a sweep second hand. Clocks should be installed only where they can be viewed by a number of staff, patients and visitors.

Radio and television

6.104 Speakers for background music should be provided in waiting areas, as designated by the project team and identified in the activity data A-Sheets. Television outlets should be provided in the waiting areas, in day spaces in multi-bed rooms, in single-bed rooms, in the play and dining room, in the recreation, day and dining room and in the classroom in the in-patient ward.

6.105 Radio and TV sound should be available at each bed position in the in-patient ward and the day-care unit with a handset having a selector switch and volume control serving an earphone unit.

6.106 The radio/television relay system should be supplied via the hospital communal aerial installation and central amplification equipment.

Lightning protection

6.107 Protection of the building against lightning should be provided in accordance with HTM2007, HSE Data Sheet DB2 and BS6651.

INTERNAL DRAINAGE

General

6.108 The primary objective is to provide an internal drainage system which:

a. uses the minimum of pipework;

b. remains water- and air-tight at joints and connections;

c. is sufficiently ventilated to retain the integrity of water seals.

Design parameters

6.109 General design guidance is contained in the relevant British Standards and Codes of Practice, including BS 5572, and the current building regulations. Recommendations for spatial and access requirements for public health engineering services are contained in HSE Data Sheets EA5.

6.110 The gradient of branch drains should be uniform and adequate to convey the maximum discharge to the stack without blockage. Practical considerations, such as available angles of bends, junctions and their assembly, as well as space considerations, usually limit the minimum gradient to about 1:50 (20 mm/m). For larger pipes, for example 100 mm diameter, the gradient may be less, but this will require workmanship of a high standard if an

adequate self-cleaning flow is to be maintained. It is not envisaged that pipes larger than 100 mm diameter will be required within interfloor or ground floor systems serving this department.

6.111 Provision for inspection, rodding and maintenance should ensure "full bore" access and be located to minimise disruption or possible contamination. Manholes should not be located within this department.

6.112 Bedpan washers or macerators should discharge with a short branch to a vertical stack or horizontal drain. The waste should not be installed above or close to heating or hot-water mains. If the bedpan washer or macerator discharges to a 100 mm drain then frequently-used large volume appliances should be situated upstream of its connection to provide additional flushing to help prevent resinous sludge accumulating in the drain.

6.113 The materials specified for the drainage system in this accommodation will depend upon their location and the nature of the effluent being discharged. Although adequate for the drainage requirements uPVC may not always be acceptable to the fire officers and neither should it be installed above 'sensitive' areas, eg, operating, intensive therapy, radio-diagnostic or catering departments, etc.

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7.0 Cost information

Introduction

7.1 For all types of health building, it is important that building costs and revenue expenditure are kept as low as possible, consistent with acceptable standards. Within this general context, Health Building Notes (HBN) provide a synopsis of accommodation for health buildings which the Department of Health, in conjunction with the National Health Service, recommends for the provision of a given service.

Works cost

7.2 To prepare an estimate of the works cost for a scheme, reference should be made to the Capricode Health Building Procedures Manual (Chapter 1, Stage 1, Annex 1(c)). The total cost allowance for a scheme is derived by aggregating the cost of the functional units, Essential Complementary Accommodation (ECA) and Optional Accommodation and Services (OAS) as appropriate to the particular scheme.

7.3 The cost allowances cover the building and engineering requirements set out in this HBN. In costing the functional units, it has been assumed that they will be incorporated into an acute general hospital where the common use of services will be available.

Functional unit

7.4 The functional units for the four functional parts of a comprehensive children's department are:

a. out-patients suite – the combined consulting/examination room;

b. child development centre – the centre;

c. in-patient ward – the 20 bed in-patient ward;

d. day-care unit – the bed/cot/trolley space.

The activity spaces and areas used for costing the functional units are listed in the Schedules of Accommodation at the end of this chapter.

Optional Accommodation and Services (OAS)

7.5 This HBN, where appropriate, draws attention to project options for providing services or facilities, including the likely cost implications. This information will enable project teams to select the solution which is most suitable to their needs. The OAS costed in this HBN is listed in the Schedules of Accommodation at the end of this chapter.

Dimensions and areas

7.6 In determining spatial requirements, the essential factor is not the total area provided but the critical dimensions, that is, those dimensions critical to the efficient functioning of the activities which are to be carried out. To assist project teams in preparing detailed design solutions for the rooms and spaces, studies have been carried out to establish dimensional requirements in the form of critical dimensions. The results of these studies appear as ergonomic diagrams in Appendix 4 of this HBN and in HBN 40 – 'Common activity spaces'.

7.7 For development planning and at the earliest stage of a design, it may be convenient for designers to have data available which will enable them to make an approximate assessment of the sizes involved. For this reason, the areas prepared for the purpose of establishing the cost allowances are included at the end of this chapter.

7.8 It is emphasised that the areas published **do not** represent recommended sizes, nor are they to be regarded in any way as specific individual entitlements.

In-patient wards

7.9 The cost allowances for the ward configuration are based upon the following provision of beds, but again it is emphasised that these should not be assumed as a specific project requirement:

a. eight single-bed rooms;

b. two multi-bed rooms with four beds each;

c. two multi-bed rooms with two beds each.

7.10 Staff toilets and changing facilities have been provided for within the departmental accommodation.

Circulation

7.11 Space for circulation, which includes allowance for planning provision, an engineering zone adjacent to the external walls, small vertical ducts and partitions, is shown in the Schedules of Accommodation and is included in the cost allowances.

Communications

7.12 Staircases, lifts and plant rooms, with the exception of an electrical switch room/cupboards and a standard enclosure for medical gas isolation points, are not included in the cost allowances.

Engineering services

7.13 The following engineering services, as described in Chapter 6 and exemplified in the activity data, are included in the cost allowances. Primary engineering services are assumed to be conveniently available at the boundary of the department.

a. **Mechanical services:**
   - (i) heating: low pressure hot water system with thermostatic radiator control, maximum touch temperature 43°C;
   - (ii) ventilation: mainly natural, but with a mechanical supply and extract to meet clinical and functional requirements;
   - (iii) cold water service: centrally supplied to service points including drinking water and hose reels. Storage tanks are not included;
   - (iv) hot water service: supplied from a central storage system;
   - (v) medical gases: piped supplies of oxygen, medical compressed air and vacuum from the hospital centralised system;

b. **Electrical services:**
   - (i) distribution board;
   - (ii) lighting system: fluorescent, safety and emergency luminaires;
   - (iii) power system: socket-outlets, outlets for equipment, standby lighting and power requirements;
   - (iv) alarm system: fire, security, medical gases and drug cupboard;
   - (v) impulse clock system;
   - (vi) staff location: extension from hospital system;
   - (vii) staff/staff and patient/staff call system;
   - (viii) telephone: wireways, wiring and outlets, but excluding handsets;
   - (ix) radio and TV installation;
   - (x) data transmission: wireways only;

c. **equipment (Group 1)**
   - (i) bedpan disposal units;
   - (ii) thermostatic mixing valves;
   - (iii) water boilers.

Schedules of Accommodation

Departmental accommodation

Para no		Space area sq m	Qty	Total area sq m
4.6	Play area	10.0	1	10.0
4.9	Seminar room	20.0	1	20.0
4.11	Staff change/shower/ locker room – male	7.0	1	7.0
4.11	Staff change/shower/ locker room – female	10.0	1	10.0
4.15	Staff WC/wash	2.0	2	4.0
4.16	Staff rest room/ beverage bay	20.0	1	20.0
4.18	Equipment store	20.0	1	20.0
4.20	Trolley and wheelchair store	3.0	1	3.0
4.21	Baby-buggy and pushchair bay	6.0	1	6.0
4.22	Disposal hold	8.0	1	8.0
4.26	Switch room	4.0	1	4.0
	Nett total			112.0
	Circulation etc			49.1
	Total			161.1
	Departmental area			160 sq m

Out-patients suite

Para no		Space area sq m	Number of consulting/ examination rooms: Three Qty	Three Total area sq m	Six Qty	Six Total area sq m
4.30	Reception desk	6.0	1	6.0	1	6.0
4.35	Waiting/play area		1	37.0	1	45.0
4.38	Weighing and measuring room	7.5	1	7.5	1	7.5
4.39	Consulting/ examination room	14.5	3	43.5	6	87.0
4.44	Treatment room	16.0	1	16.0	1	16.0
4.50	Baby feeding room	4.0	1	4.0	1	4.0
4.51	Nappy changing room	3.0	1	3.0	1	3.0
4.52	WC/wash	2.0	1	2.0	2	4.0
4.52	Disabled WC/ wash	4.5	1	4.5	1	4.5
4.54	Clean utility room	7.0	1	7.0	1	7.0
4.55	Dirty utility room	10.0	1	10.0	1	10.0
4.56	Sister's office	9.0	1	9.0	1	9.0
4.57	Cleaners' room	6.0	1	6.0	1	6.0
4.60	Switch cupboard	2.0	1	2.0	1	2.0
	Nett total			157.5		211.0
	Circulation etc			69.1		92.5
	Total			226.6		303.5
	Departmental areas	225 sq m		305 sq m		

Child development centre

Para no		Space area sq m	Qty	Total area sq m
4.65	Waiting/play area		1	20.0
4.66	Assessment/ observation/remedial therapy room	30.0	2	60.0
4.69	Viewing room	11.0	1	11.0
4.71	Dining area		1	15.0
4.73	WC/wash	2.0	2	4.0
4.74	Disabled WC/wash	4.5	1	4.5
4.75	Shower room	3.0	1	3.0
4.76	Office	15.0	1	15.0
4.77	General store (1)	6.0	1	6.0
4.78	General store (2)	6.5	1	6.5
4.79	Switch cupboard	2.0	1	2.0
	Nett total			147.0
	Circulation etc			64.5
	Total			211.5
	Departmental area			210 sq m

In-patient ward

Para no		Space area sq m	Qty	Total area sq m
4.82	Single-bed rooms	14.0	6	84.0
4.83	Single-bed rooms with en-suite sanitary facilities	18.0	2	36.0
4.85	Multi-bed rooms – 4 beds *	50.0	2	100.0
4.85	Multi-bed rooms – 2 beds *	25.0	2	50.0
4.89	Play and dining room	20.0	1	20.0
4.93	Recreation, day and dining room	39.0	1	39.0
4.96	Classroom	24.0	1	24.0
4.101	Teacher's room	7.5	1	7.5
4.102	Therapy room	30.0	1	30.0
4.107	Treatment room	16.0	1	16.0
4.113	Interview room	7.5	1	7.5
4.120	Patients' bath/WC/wash	4.5	2	9.0
4.120	Patients' assisted bath/ WC/wash	14.0	1	14.0
4.120	Patients' shower/WC/ wash	4.0	1	4.0
4.120	Patients' assisted shower/WC/wash	6.0	1	6.0
4.125	Patients' WC/wash	2.0	2	4.0
4.125	Disabled WC/wash	4.5	1	4.5
4.131	Ward office	15.0	1	15.0
4.133	Staff base	5.0	1	5.0
4.136	Sister's office	9.0	1	9.0
4.137	Clean utility	10.0	1	10.0
4.138	Dirty utility	12.0	1	12.0
4.144	Ward pantry	17.5	1	17.5
4.152	Baby food store and preparation room	7.0	1	7.0
4.155	Linen store	5.5	1	5.5
4.156	Clothing store	6.0	1	6.0
4.158	General store	6.0	1	6.0
4.159	Resuscitation trolley bay	6.0	1	6.0
4.160	Wheelchair and baby-buggy bay	6.0	1	6.0
4.161	Cleaners' room	6.0	1	6.0
4.162	Laundry room	8.0	1	8.0
4.163	Beverage bay	4.0	1	4.0
4.165	Room for use of breast pump	4.0	1	4.0
4.167	Bed room for parents/ carers	12.0	1	12.0
4.169	Sitting-room for parents/carers	8.0	1	8.0
4.171	Parents/carers' shower	4.5	1	4.5
4.171	Parents/carers' WC/wash	3.0	1	3.0
4.172	Switch cupboard	2.0	1	2.0
	Nett total			612.0
	Circulation etc			268.5
	Total			880.5
	Departmental area			880 sq m

* Flexible combination to suit specific requirements: refer to paragraph.

Day-care unit

Para no		Space area sq m	Qty	Total area sq m
4.176	Waiting/play area	20.0	1	20.0
4.177	Staff base/clean utility	7.0	1	7.0
4.180	Single-bed rooms	14.0	2	28.0
4.180	Multi-bed rooms	75.0	1	75.0
4.182	Treatment room	16.0	1	16.0
4.188	WC/wash	2.0	1	2.0
4.188	Disabled WC/wash	4.5	1	4.5
4.189	Beverage bay	3.0	1	3.0
4.190	Dirty utility	6.0	1	6.0
4.192	Switch cupboard	2.0	1	2.0
	Nett total			163.5
	Circulation etc			71.7
	Total			235.2
	Departmental area			235 sq m

Optional Accommodation and Services

Para no		Space area sq m	Circn etc sq m	Total area sq m
4.104	Admission room	14.0	4.5	18.5
4.151	Cook-chill trolley room	12.0	4.0	16.0
4.167	Bed room for parents/carers	12.0	4.0	16.0

8.0 Activity data

Introduction

8.1 The term "activity data" refers to an information system developed to help project and design teams by defining the users' needs more precisely. It comprises three types of information sheet: Activity Space Data Sheets (known as A-Sheets), their supporting Activity Data Sheets (known as B-Sheets) and A-Sheet component listings (known as D-Sheets).

8.2 A-Sheets record in more detail than is described in this HBN, each task or activity that is performed in a particular activity space (which may be a room, space or bay), together with details of the environmental conditions and the technical data necessary to enable the activities to be performed. Each A-Sheet also contains a list of the titles and code numbers of the relevant B-Sheets.

8.3 B-Sheets provide narrative text and graphics to scale relating to one activity. They show equipment fitted or supplied as part of the building, and the necessary engineering terminals. There are also "component B-Sheets" which show a range of particular components rather than an activity.

8.4 D-Sheets provide information about the total quantities of components (excluding those in Group 4 – see paragraph 1.12) extracted from all B-Sheets selected for inclusion in an individual A-Sheet. Further information about the use and preparation of Activity Data and an explanatory demonstration disk can be obtained from NHS Estates, Department of Health, 1 Trevelyan Square, Boar Lane, Leeds LS1 6AE.

Activity data applicable to this volume

8.5 The A-Sheets recommended for the activity spaces described in this HBN are either new sheets, amended ones, or selected from existing sheets. A list of A-Sheet code numbers and titles is given in the following pages.

8.6 Further activity data sheets may be selected, or drawn up, by project teams to their own requirements, for any services not described in the HBN or included in the list. Members of project teams are advised to contact their Activity Data Co-ordinator/Welsh Office for information and advice about the selection of activity data, at an early planning stage.

8.7 In order to ensure consistent and economic provision, variations from the A-Sheets recommended for the spaces covered in this HBN should be considered only where it has been decided that the function of a space will differ substantially from that described. For advice on specialist services associated with Activity DataBase, contact NHS Estates.

Activity space	A-Sheet Code no	Para no in HBN
Departmental accommodation		
Play area	J1401	4.6
Seminar room	H0503	4.9
Staff change/shower/locker room – male	V0312	4.11
Staff change/shower/locker room – female	V0314	4.11
Staff WC/wash	V1005	4.15
Staff rest room with beverage bay	D0504	4.16
Equipment store	W1420	4.18
Trolley and wheelchair store	W1574	4.20
Baby-buggy and pushchair bay	G0108	4.21
Disposal hold	Y0603	4.22
Switch room	K0101	4.26
Out-patients suite		
Reception desk	J0210	4.30
Waiting/play area	J1406	4.35
Weighing and measuring room	C1405	4.38
Consulting/examination room	C0201	4.39
Treatment room	X0105	4.44
Baby feeding room	J0705	4.50
Nappy changing room	J0702	4.51
WC/wash	V1106	4.52
Disabled WC/wash	V1206	4.52
Clean utility room	T0504	4.54
Dirty utility room	Y0412	4.55
Sister's office	M0201	4.56
Cleaners' room	Y1501	4.57
Switch cupboard	K0101	4.60
Child development centre		
Waiting/play area	J1405	4.65
Assessment/observation/remedial therapy room	X0704	4.66
Viewing room	X0705	4.69
Dining area	D0606	4.71
WC/wash	V1106	4.73
Disabled WC/wash	V1206	4.74
Shower room	V0801	4.75
Office	M0201	4.76
General store (1)	W1110	4.77
General store (2)	W1110	4.78
Switch cupboard	K0101	4.79

Activity space	A-Sheet Code no	Para no in HBN
In-patient wards		
Single-bed rooms	B0801	4.82
Single-bed rooms with en-suite sanitary facilities	B1802	4.83
Multi-bed rooms – 4 beds	B2001	4.85
Multi-bed rooms – 2 beds	B2005	4.85
Play and dining room	D0803	4.89
Recreation, day and dining room	D1119	4.93
Classroom	H0704	4.96
Teacher's room	M0101	4.101
Therapy room	X0610	4.102
Treatment room	X0214	4.107
Interview room	M0201	4.113
Patients' bath/WC/wash	V1711	4.120
Patients' assisted bath/WC/wash	V1716	4.120
Patients' shower/WC/wash	V1305	4.120
Patients' assisted shower/WC/wash	V1612	4.120
Patients' WC/wash	V1106	4.125
Disabled WC/wash	V1206	4.125
Ward office	M0205	4.131
Staff base	T0108	4.133
Sister's office	M0201	4.136
Clean utility	T0601	4.137
Dirty utility	Y0301	4.138
Ward pantry	P0607	4.144
Baby food store and preparation room	P1002	4.152
Linen store	W1421	4.155
Clothing store	W1413	4.156
General store	W1506	4.158
Resuscitation trolley bay	G0103	4.159
Wheelchair and baby-buggy bay	G0108	4.160
Cleaners' room	Y1501	4.161
Laundry room	Y0507	4.162
Beverage bay	P0702	4.163
Room for use of breast pump	P1006	4.165
Bed room for parents/carers	D1303	4.167
Sitting room for parents/carers	D1403	4.169
Parents/carers shower	V0801	4.171
Parents/carers WC/wash	V1005	4.171
Switch cupboard	K0101	4.172

Activity space	A-Sheet Code no	Para no in HBN
Day-care unit		
Waiting/play area	J1405	4.176
Staff base/clean utility	T0305	4.177
Single-bed rooms	B1801	4.180
Multi-bed rooms	B2002	4.180
Treatment room	C0613	4.182
WC/wash	V1106	4.188
Disabled WC/wash	V1206	4.188
Beverage bay	P0703	4.189
Dirty utility	Y0301	4.190
Switch cupboard	K0101	4.192
Optional Accommodation and Services		
Admission room	C0301	4.104
Cook-chill trolley room	P0608	4.151
Bed room for parents/carers	D1303	4.167

Appendix 1

'Welfare of Children and Young People in Hospital' – cardinal principles

An extract from the Department of Health guide follows:

"These basic principles inform all aspects of this guide:

- *Children are admitted to hospital only if the care they require cannot be as well provided at home, in a day clinic or on a day basis in hospital.*
- *Children requiring admission to hospital are provided with a high standard of medical, nursing and therapeutic care to facilitate a speedy recovery and minimise complications and mortality.*
- *Families with children have easy access to hospital facilities for children without needing to travel significantly further than to other similar amenities.*
- *Children are discharged from hospital as soon as socially and clinically appropriate and full support provided for subsequent home or day care.*
- *Good child health care is shared with parents/carers and they are closely involved in the care of their children at all times unless, exceptionally, this is not in the best interests of the child. Accommodation is provided for them to remain with their children overnight.*
- *Accommodation, facilities and staffing are appropriate to the needs of children and adolescents and separate from those provided for adults. Where possible separate accommodation is provided for adolescents.*
- *Like all other patients, children have a right for their privacy to be respected and to be treated with tact and understanding. They have an equal right to information appropriate to their age, understanding and specific circumstances."*

Appendix 2

The NAWCH Charter – 'Action for Sick Children'

- Children shall be admitted to hospital only if the care they require cannot be equally well provided at home or on a day basis.
- Children in hospital shall have the right to have their parents with them at all times provided this is in the best interests of the child. Accommodation should therefore be offered to all parents, and they should be helped and encouraged to stay. In order to share in the care of their child, parents should be fully informed about ward routine and their active participation encouraged.
- Children and their parents shall have the right to information appropriate to their age and understanding.
- Children and their parents shall have the right to informed participation in all decisions involving their health care. Every child shall be protected from unnecessary medical treatment, and steps taken to mitigate physical and emotional distress.
- Children shall be treated with tact and understanding and at all times their privacy shall be respected.
- Children shall enjoy the care of appropriately trained staff, fully aware of the physical and emotional needs of each age group.
- Children shall be able to wear their own clothes and have their own personal possessions.
- Children shall be cared for with other children of the same age group.
- Children shall be in an environment furnished and equipped to meet their requirements, and which conforms to recognised standards of safety and supervision.
- Children shall have full opportunity for play, recreation and education suited to their age and condition.

Appendix 3

Information management and technology network diagram (Figure 2) – glossary

Introduction

1. This glossary explains the meaning of those terms used in connection with "Station functions" in Figure 2 that are not self-explanatory.

2. The need for security and confidentiality is stressed. One of the key principles of the NHS Information Management and Technology (IM&T) strategy is:

"Information will be secure and confidential.

Great care will be taken to ensure that the information held on computer will be available only to those who *need* to know it and who are *authorised* to know it."

Orders

3. Electronically placing orders for tests, for example, blood tests and X-rays, and clinical services, for example, physiotherapy and audiology.

4. This function may also include the ability to enquire on the status of orders placed previously, for example "received", "being processed" and "completed".

Results

5. Electronically receiving results of orders (paragraph 3 above), for example, results of blood tests and X-rays, direct from clinical service departments.

6. This function may also include the ability:

a. for urgent results to be "automatically" referred for the attention of the responsible clinician;

b. to enquire on a series of results relating to a single patient.

Order communications system

7. The "orders" and "results" functions are usually combined in an order communications system.

Clinical coding

8. The process by which clinical information, for example diagnoses, symptoms and treatment, is entered into a computer in a coded form.

9. It is noted that one element of the NHS IM&T strategy is the development of a thesaurus of coded clinical terms and groupings.

GP contact

10. A facility to exchange patient information with general practitioners, either by electronic mail or directly by means of a computerised communications network.

11. This facility is also a feature of the NHS IM&T strategy.

Waiting lists

12. Access to a clinician's waiting list management system.

Appointments

13. Maintaining, or making enquiries of, the appointments systems for the comprehensive children's department and, for example, the out-patients department.

Health records

14. Access to health records held electronically as text, coded data or digitised images, for example X-rays.

Patient assessment

15. Access to a system which supports the structured assessment of a patient's requirement for clinical care and the systematic collection of data associated with the assessment.

Care planning

16. Access to a system which supports:

a. the systematic planning of care, appropriate to a patient's assessed needs;

b. the calculation of the amount of nursing resource, and the correct skill mix necessary to deliver the planned care.

Staff rosters

17. Maintenance of rosters for nursing staff. Computer systems can assist nurse managers in the preparation of rosters.

Nursing management system

18. The "patient assessment", "care planning" and "staff rosters" functions are usually combined in a single nursing management system.

Community contact

19. A facility to exchange patient information with community, primary care and/or other sectors or agencies, for example, social services department, either by electronic mail or directly by means of a computerised communications network.

Decision support

20. Access to a system which can present either clinical or management information in a way that assists the process of decision-making or planning. Systems typically make strong use of graphical displays and allow a level of statistical analysis or "what if" modelling.

Contracting

21. A facility which enables the activities of a comprehensive children's department to be monitored against its contracts and assists with the management of extra-contractual referrals.

Non-clinical orders

22. Electronically placing orders for non-clinical services, for example, for repairs or supplies.

23. This function may also include the ability to enquire on the status of orders placed previously, for example, "received", "being processed" and "completed".

Appendix 4

Critical dimensions

Introduction

1. Critical dimensions are those dimensions which are critical to the efficient functioning of an activity; thus the size of components, their position and the space around them may all be critical to the task being performed. Guidance on these dimensions for a particular activity is provided in the form of **component-user data sheets.** These illustrate components, ie equipment, furniture and fittings, and provide ergonomic data on the space required for users to move, operate or otherwise use the component; information about the component, eg fixing heights, and the users, eg reach, is also provided. Component-user data sheets thus complement the information given on Activity Data B-Sheets (see Chapter 8).

2. This appendix contains sheets relevant to this Note. In addition, ergonomic data common to the design of a number of departments is contained in the Health Building Note 40 – 'Common activity spaces', to which reference should also be made.

Component dimensions

3. These relate to the size and position of components as follows:

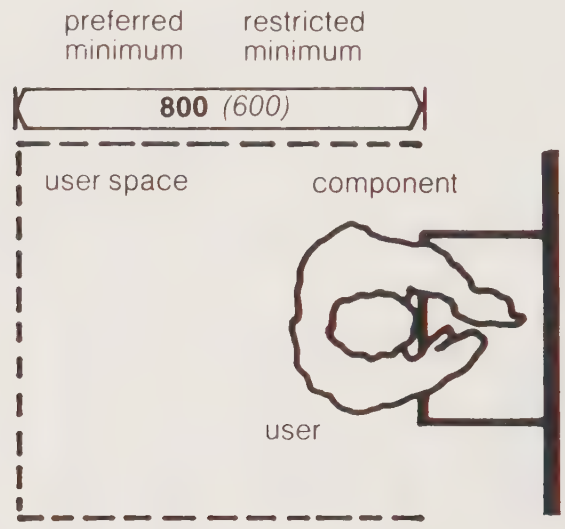
a. sizes of components are shown thus

b. preferred component fixing heights are shown as height above floor level thus

(In some cases an acceptable range of fixing heights is also given in italics.)

Activity dimensions

4. Activity dimensions define the user space, which is the minimum space required to perform an activity. Two types of activity dimensions are given:

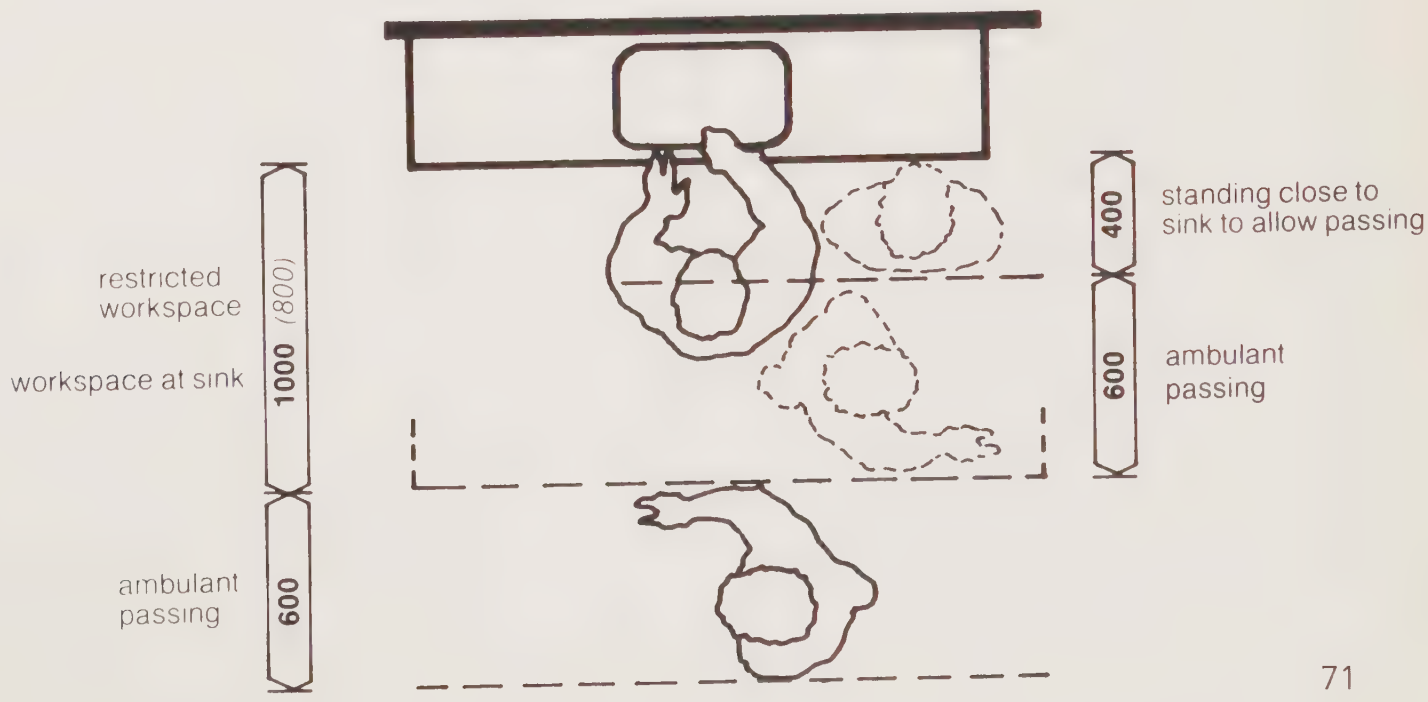


a. preferred minimum – this defines the minimum space required to carry out an activity efficiently and is shown in bold type.

b. restricted minimum – this will only allow the activity to be performed at the expense of the user experiencing some difficulty. It is not recommended for general application but may be appropriate when considering the overlapping that can be allowed when two user spaces are adjoining.

Selection of activity dimensions

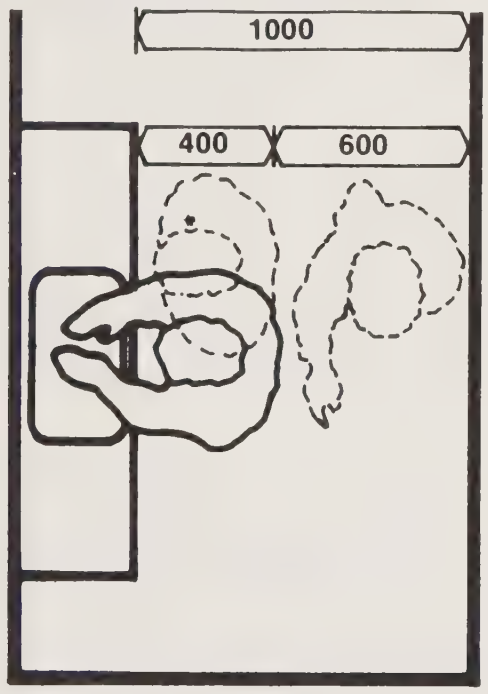
5. When using component-user data sheets to design activity space layouts, selection of the appropriate activity dimensions is essential for economy and efficiency. Selection should be based on careful consideration of the frequency, duration, timing and importance of the activities and also the number of people involved. A typical example of the use of a sink, showing activity dimensions provided by the component-user data sheet is shown below.



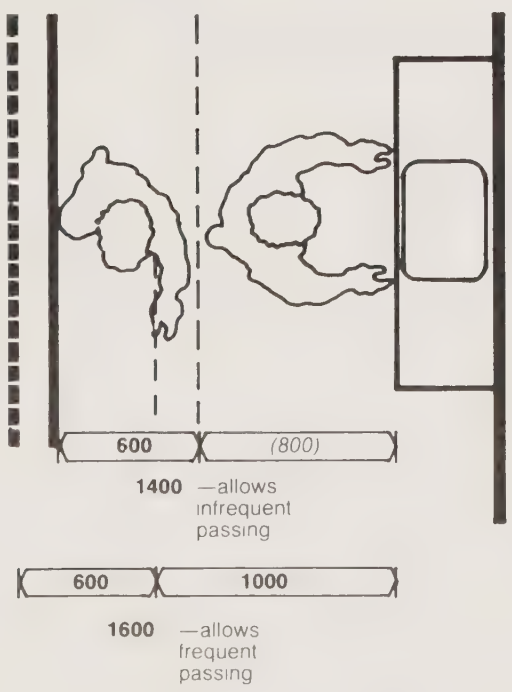
Examples

6. The following worked examples show the sink being used in three different situations and show how the appropriate dimensions would be selected but do not necessarily relate to this particular building guidance. These examples have been simplified and additional factors such as the movement of mobile equipment may also be critical.

a. if the room is normally occupied by one person only the 1,000 workspace dimension may be applicable. An (800) restricted dimension should not be used as this dimension is only applicable where two user spaces are adjoining, not where an individual user space is bounded by a wall or solid obstruction. If the person using the sink stops work and stands close to the sink, 1,000 is also sufficient space to allow a second person to pass, ie 600 + 400;

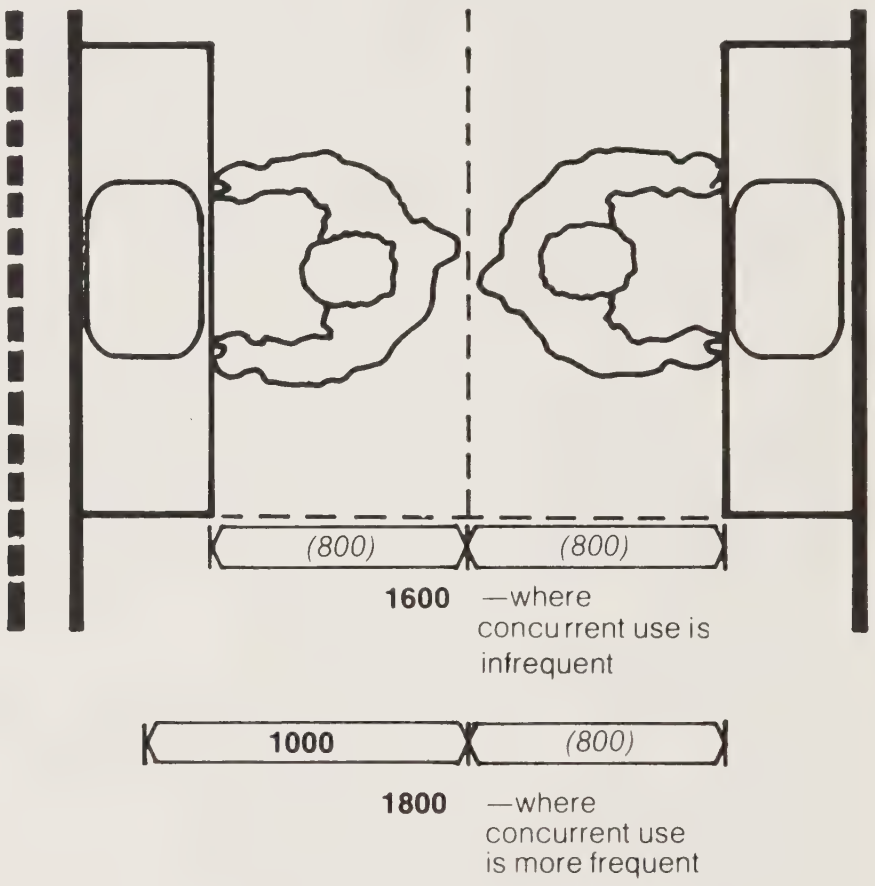


b. if space is required to allow a person to pass, without the user of the sink stopping work, then the 600 passing dimension is added to the workspace dimension. If passing is infrequent then temporary restriction of the sink user's space may be acceptable; this gives an overall dimension of 600 + (800) = 1,400. If passing is frequent and restriction of the sink user's space is not acceptable the overall dimension is 600 + 1,000 = 1,600;



c. where space has to be provided to enable two sinks to be used concurrently the overall dimension between sinks will be the sum of the workspace dimensions, eg if concurrent use is infrequent and of short duration then (800) + (800) = 1,600 may be acceptable. Alternatively 1,000 + (800) = 1,800 allows the full workspace for one sink user and restricted space for the second user, where concurrent use of the sinks is more frequent.

Note. The passing of a third person between the two sink users may also be critical in this example. Where the sinks are staggered 1,400 may be acceptable as in example (b).



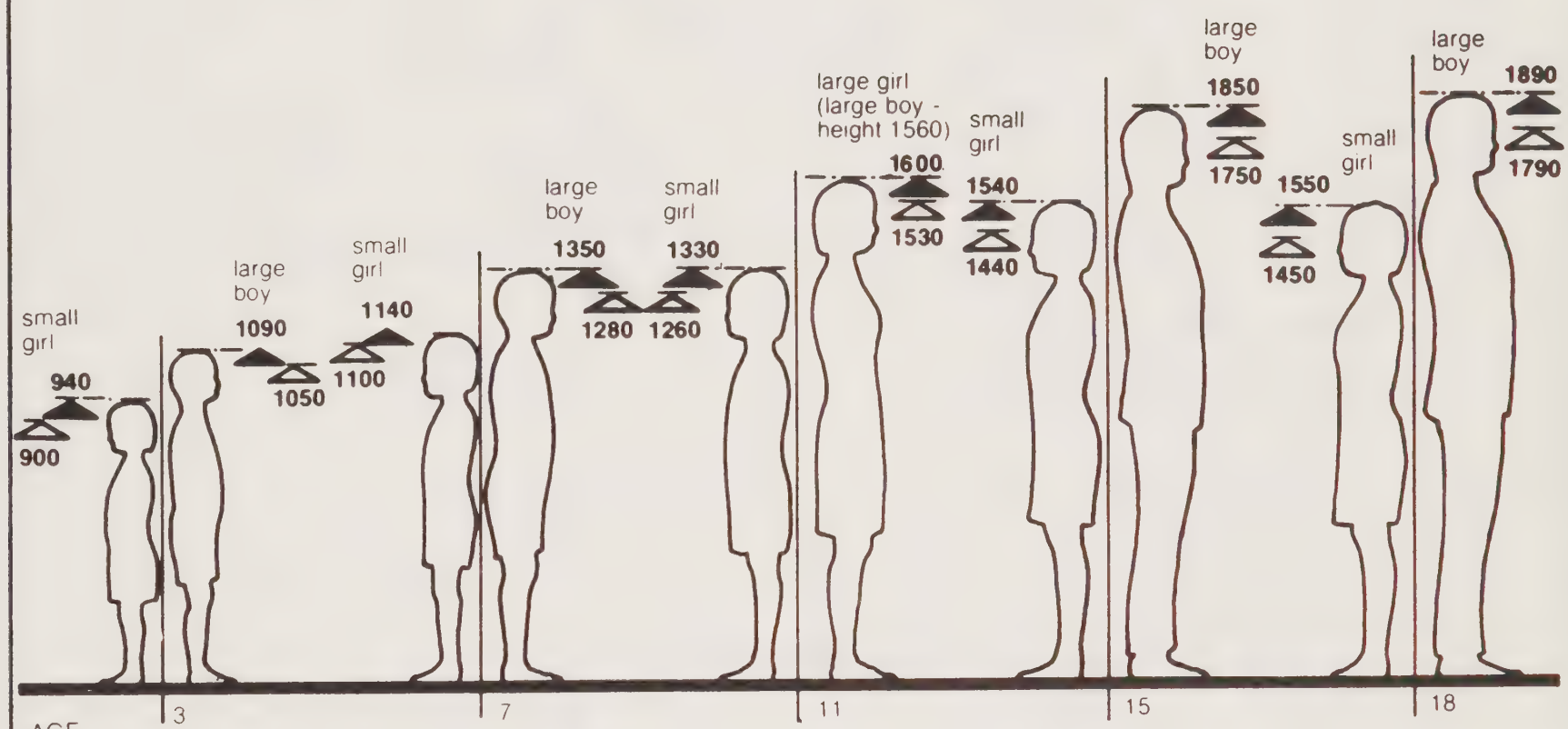
List of ergonomic drawings

1. Child
2. Shelf
3. Chalk/Chinagraph board
4. Mirror
5. Nursing table, bathing
6. Bath
7. Basin
8. WC
9. Chair & Table
10. Pram (1)
11. Pram (2)

Activities
Stature and standing eye levels

Ergonomic data bank:
Component-user data sheet, not to scale

Child
Boys and girls Age 3-16 (ages last birthday)



— stature

— eye level

Notes

1 Dimensions include a correction for shoes of 25mm

2 Dimensions given are upper and lower limits (only 5% of children can be expected to be taller or shorter)

3 Data taken from British School of Population — dimensional survey 1971 published in Building Bulletin No 46

Activities
Placing or removing items from shelves

Ergonomic data bank:
Component-user data sheet, not to scale

Shelf
Wall mounted up to 200 deep

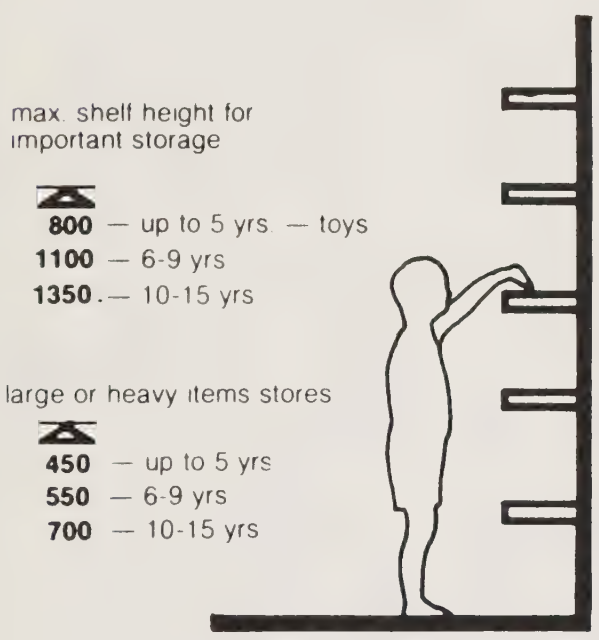
Users
Children 3-15 (ages last birthday)

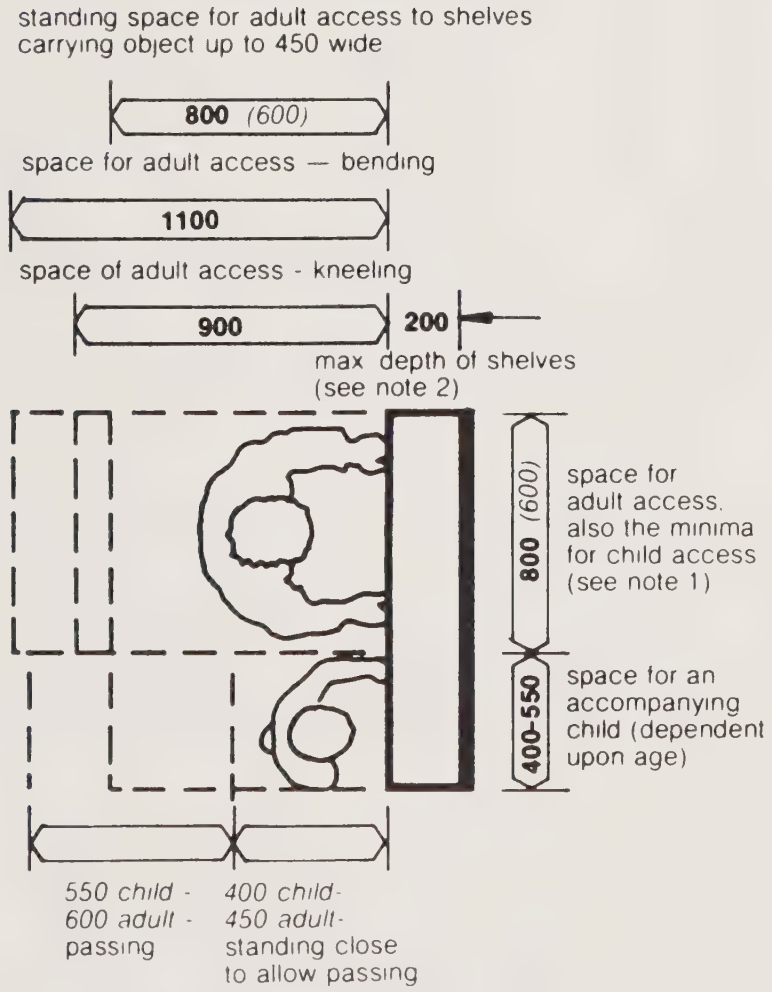
ELEVATION

UP TO 5 YEARS OLD

6-9 YEARS OLD

10-15 YEARS OLD


max. shelf height for important storage
800 — up to 5 yrs. — toys
1100 — 6-9 yrs
1350 — 10-15 yrs
large or heavy items stores
450 — up to 5 yrs
550 — 6-9 yrs
700 — 10-15 yrs
items to be kept out of reach of very young children must be stored above this
1250
900
1050 infrequently accessed larger light items
800
small, frequently accessed items
250
1450 larger lighter items only
1200
optimum zone for frequently accessed and small items
600 bending necessary
350 kneeling necessary
250
(also applies to adult use) steps required to safely access items on shelves infrequently accessed items only
1700 storage of large light items only
1450
optimum zone for frequently accessed and small items
700 bending necessary
550 kneeling necessary
300


standing space for adult access to shelves carrying object up to 450 wide
800 (600)
space for adult access — bending
1100
space of adult access - kneeling
900
200
max depth of shelves (see note 2)
800 (600)
space for adult access, also the minima for child access (see note 1)
400-550
space for an accompanying child (dependent upon age)
550 child - 600 adult - passing
400 child - 450 adult - standing close to allow passing

PLAN

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use see explanatory notes)*

Notes

1 Please note that space requirements for access to shelves is determined by the needs of adults (nursing staff, parents and domestic staff), and not by the children

2 These recommendations relate to unimpeded access to shelves 200 deep (max)

3 Critical Criteria Reach — Children
— Adult access

(maximum reach, confortable reach and eye-level all being important)

Activities
Writing on a vertical surface. Standing use

Ergonomic data bank:
Component-user data sheet, not to scale

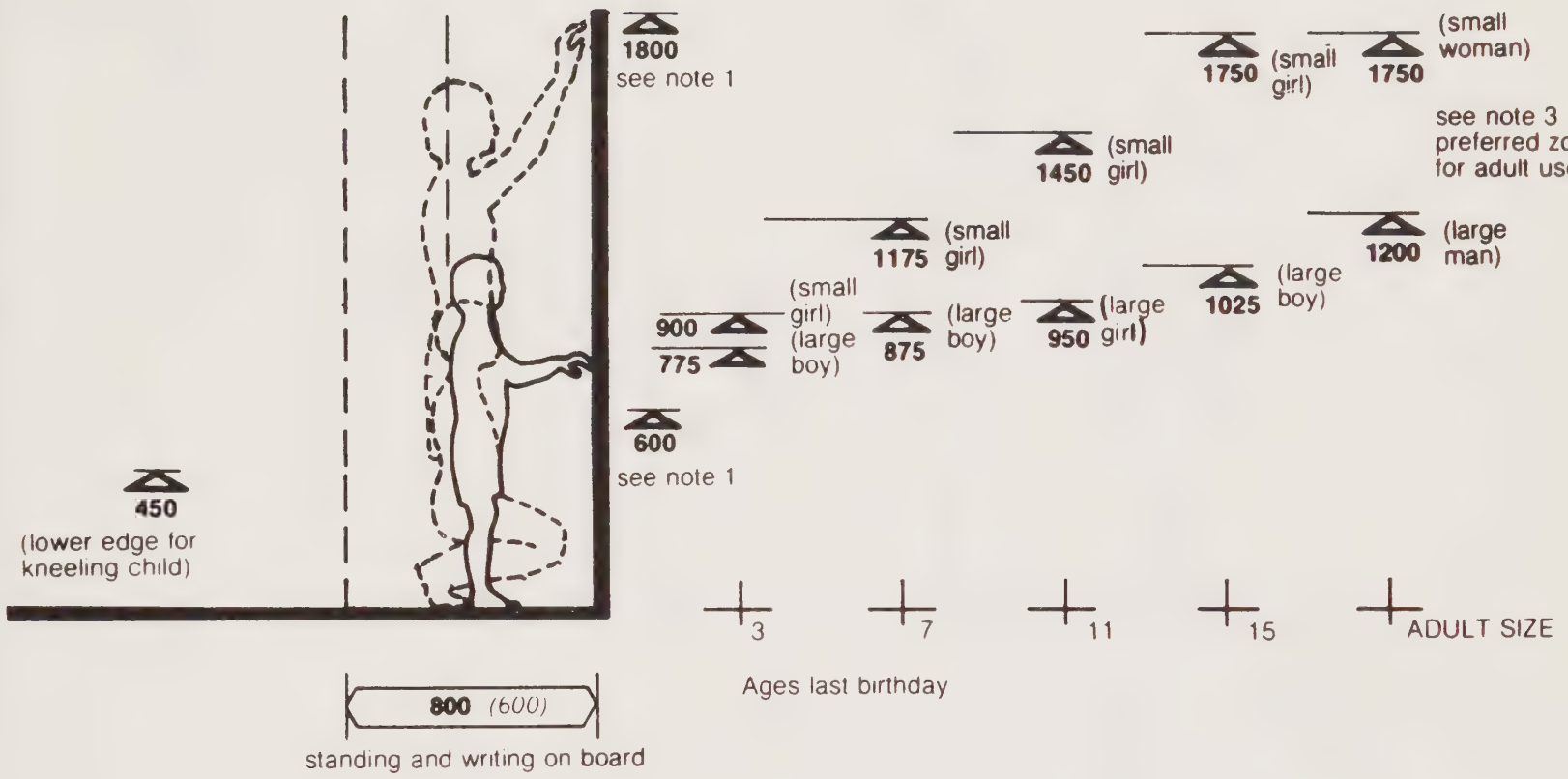
Chalk/Chinagraph board

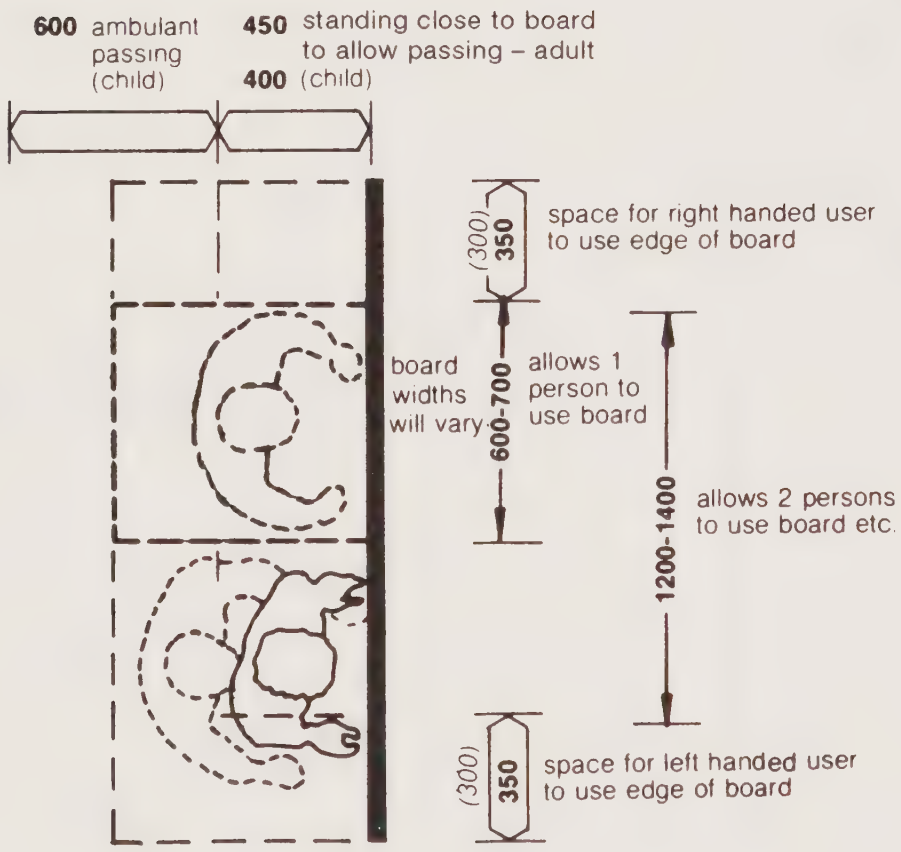
Wall mounted

Users
Children 3-5 (age last birthday)

ELEVATION

DRAWING ON A VERTICAL SURFACE — REACH LIMITS (see note 2)




600 ambulant passing (child)
450 standing close to board to allow passing – adult
400 (child)
(300) 350 space for right handed user to use edge of board
board widths will vary
600-700 allows 1 person to use board
1200-1400 allows 2 persons to use board etc.
(300) 350 space for left handed user to use edge of board

PLAN

1350 *(1350)*

Preferred minimum *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes

1. Recommended mounting height for 1200 high board

2. Critical criteria — Upper edge of board — based on upper limit for girl
— Lower edge of board — based on lower limit for large boy (except 11 year olds — large girls)

3. User space must take account of possible use of space by adult eg. for teaching purposes

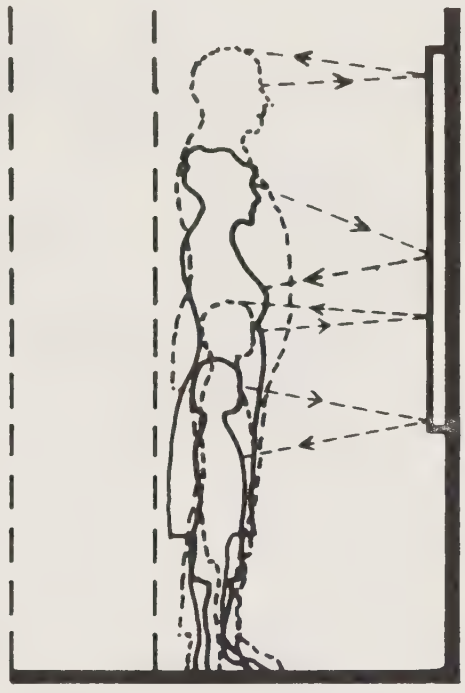
Activites
Grooming — viewing head and shoulders

Ergonomic data bank:
Component-user data sheet, not to scale

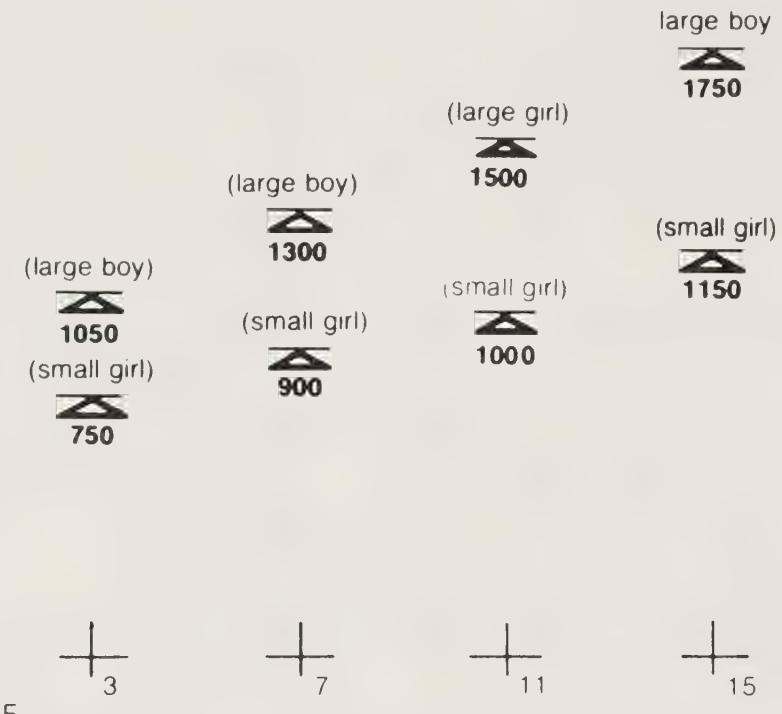
Mirror
Wall mounted

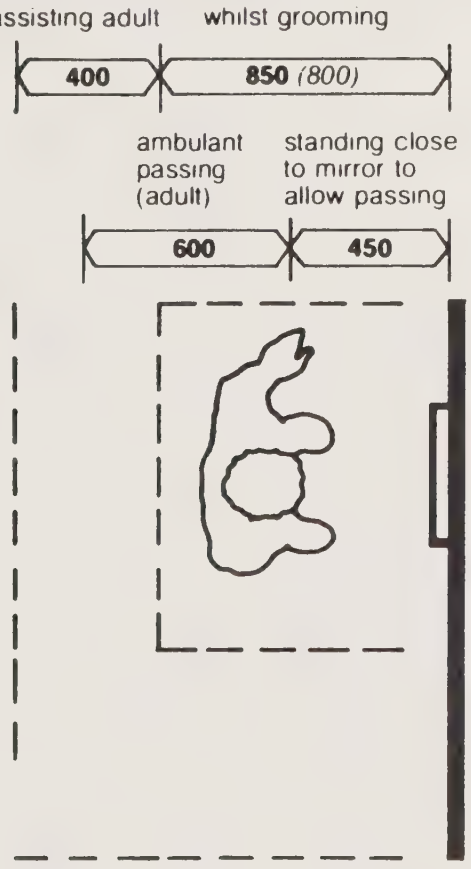
Users
Children 3-15 (ages last birthday)

ELEVATION

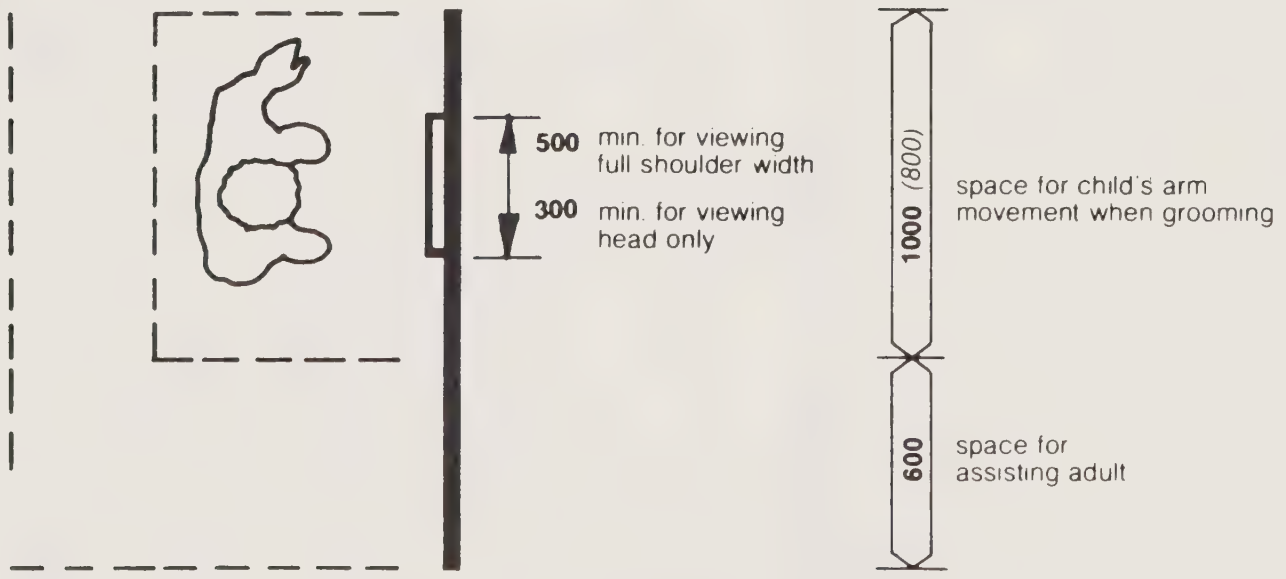


Upper and lower limits of view (see note 1)





PLAN



1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use see explanatory notes)*

Notes

1. The dimensions given are limits of view not heights of mirror — an allowance of 50 min. should be allowed at both the upper and lower limits of view to give the top and bottom edges of mirrors

Example — Mirror to cater for young boys and girls from 3-15 viewing head and shoulders — dimensions above floor level

top edge 1750 + 50 = 1800
bottom edge 750 — 50 = 700

2. Dimensions based on Building Bulletin 38-DES — see also "Child" stature, eye levels, shoulder level

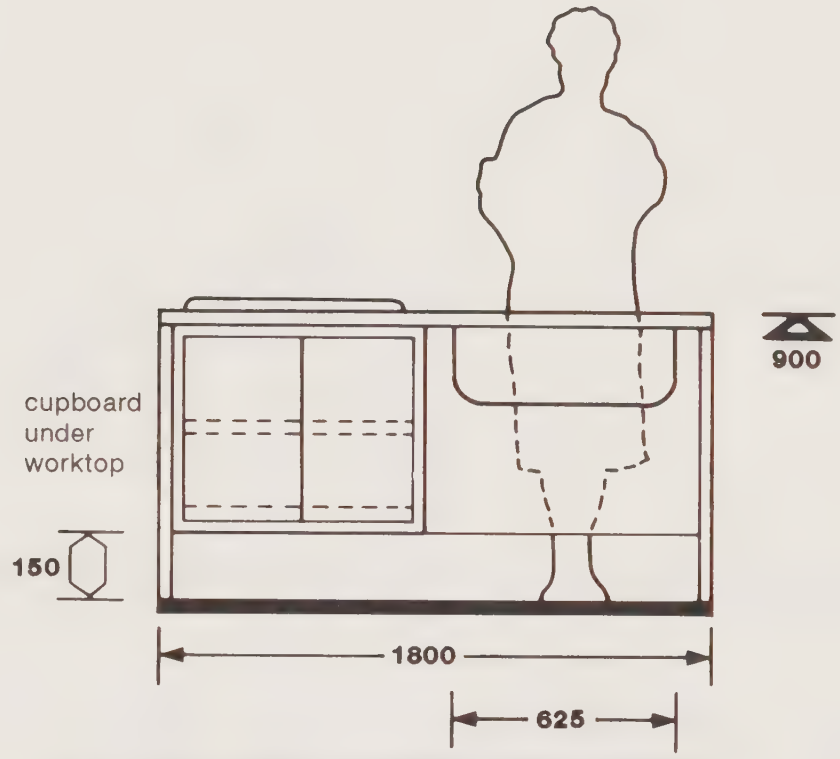
Activities
Bathing child

Ergonomic data bank:
Component-user data sheet, not to scale

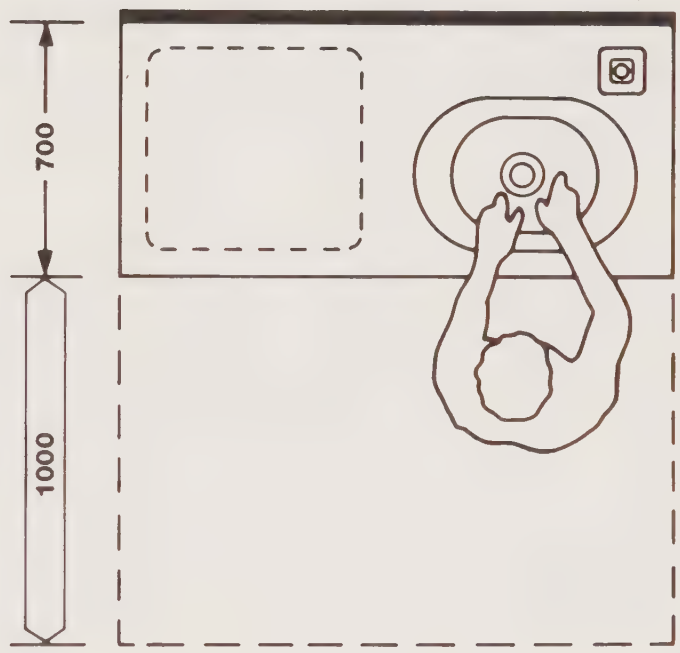
Nursing table

Users
staff, mother or carer

ELEVATION



PLAN



1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use see explanatory notes)*

Notes

1 Nursing table with bath, thermostat mixer and optional nursing worktop mattress.

2 Provision of shelves may be considered instead of cupboard.

Activities
Bathing child

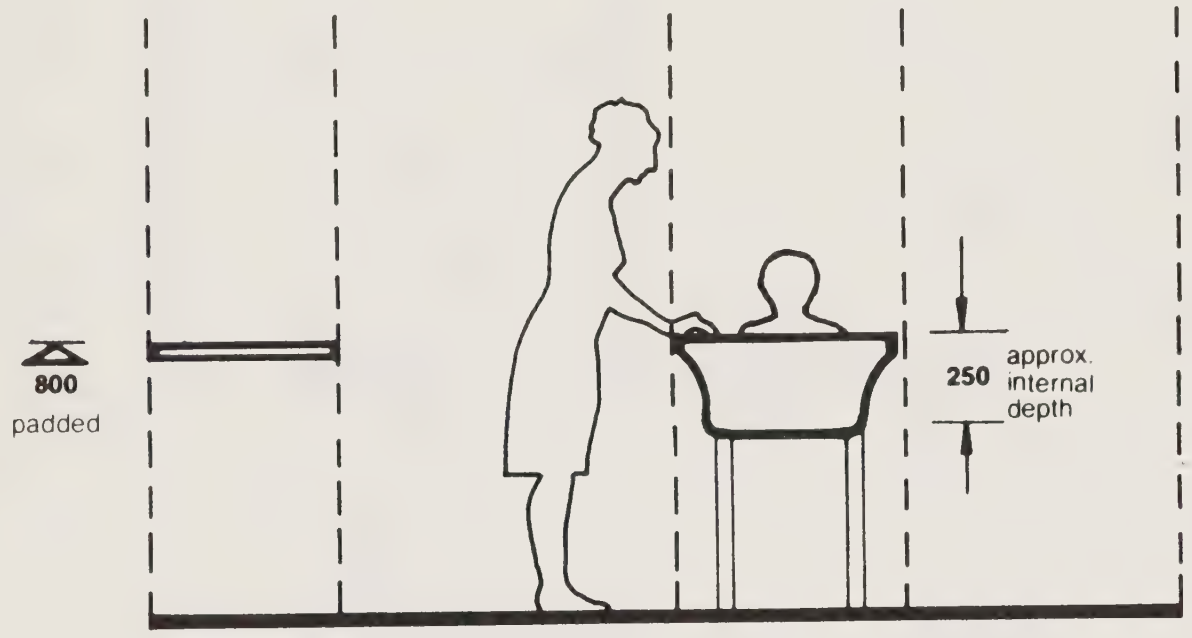
Ergonomic data bank:
Component-user data sheet, not to scale

Bath

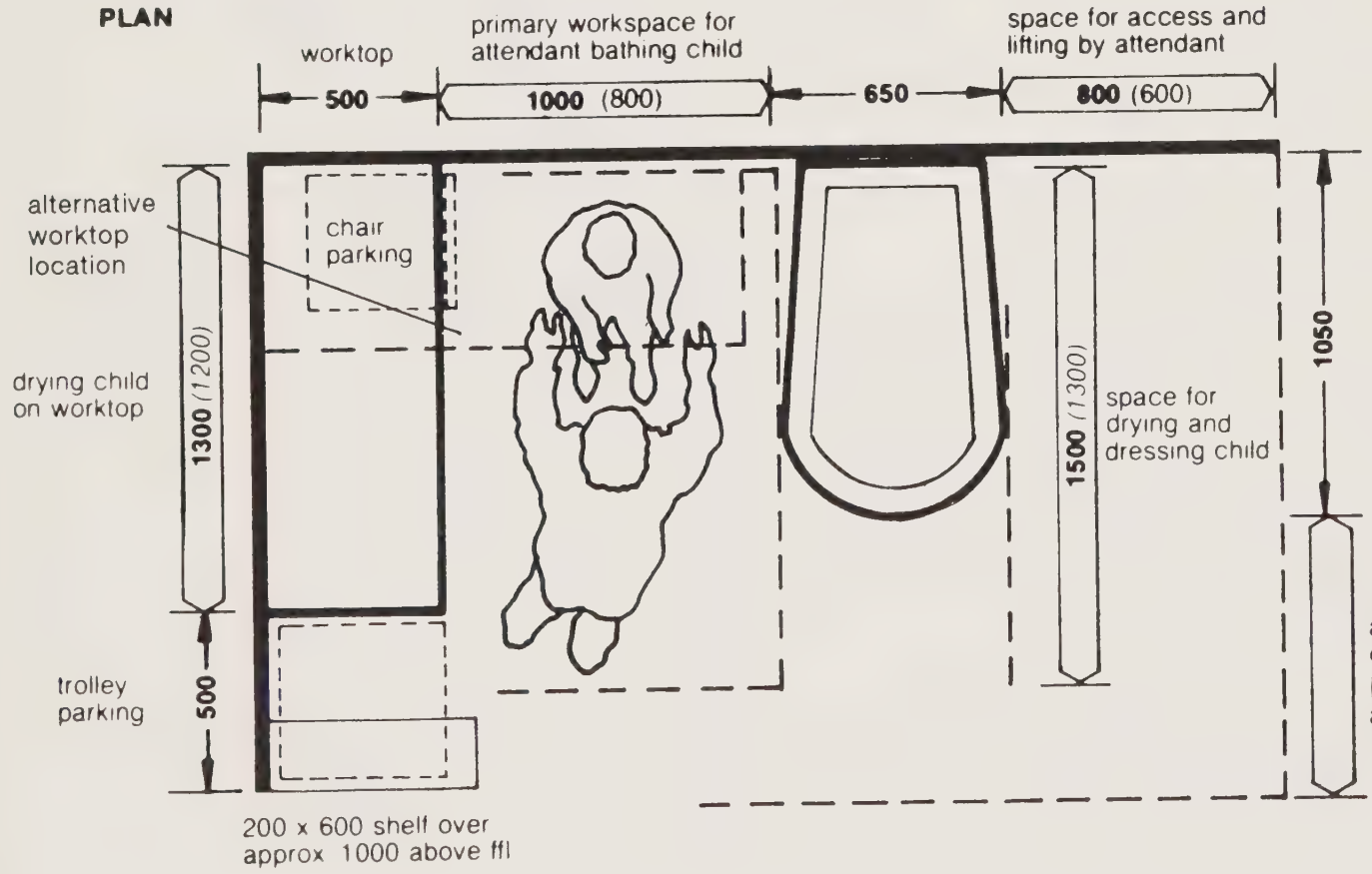
Childs

Users
Children (up to approx. 5 years) with assistance

ELEVATION



PLAN



1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use, see explanatory notes)*

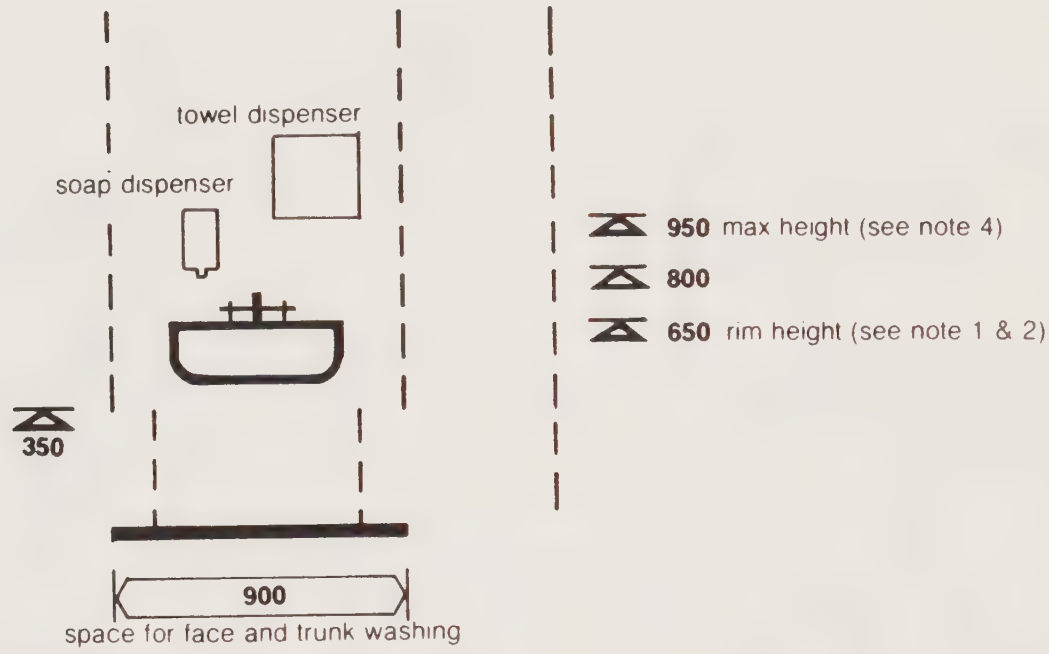
Activities
Personal washing

Ergonomic data bank:
Component-user data sheet, not to scale

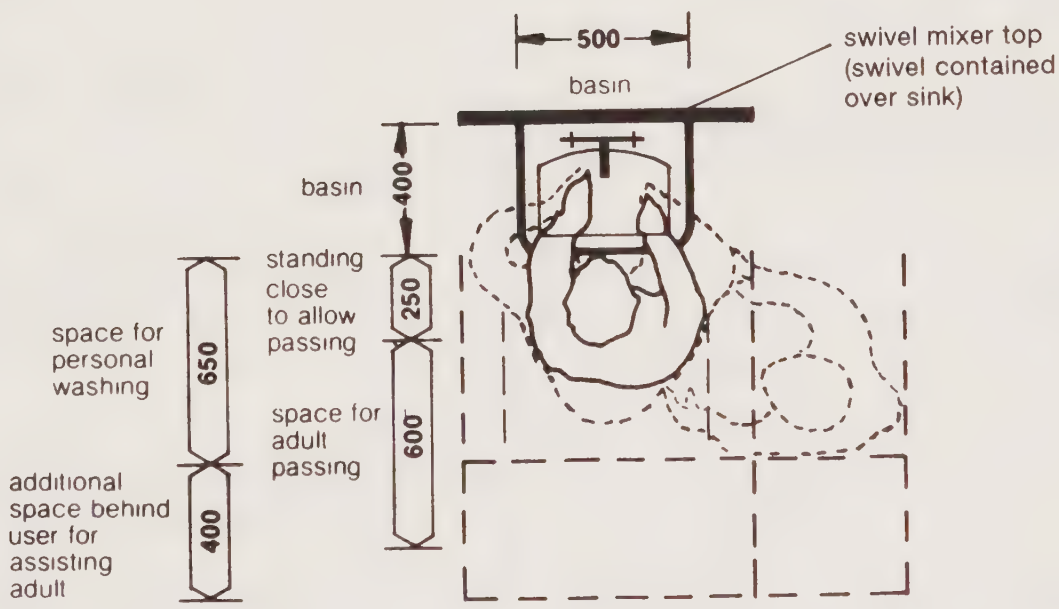
Basin
Medium

Users
Children (3-9 years old)

ELEVATION



PLAN



1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use see explanatory notes)*

Notes:
1. Fixing height requirements depend on the predicted age range of children who will use the facility. The above arrangement is only recommended where there is a large concentration of children in this age group.

2. It is ergonomically desirable to provide two basic rim heights for the age group 3-9 ie 600 and 700, but this is unlikely to be practical.

3. Reach to soap dispenser must not be obstructed by position of taps.

4. Recommendations in respect of fixing heights for soap and towel dispensers will depend on the operating action of the type of facility use, e.g. a towel dispenser which requires a tearing action will require to be located lower than the max. height shown.

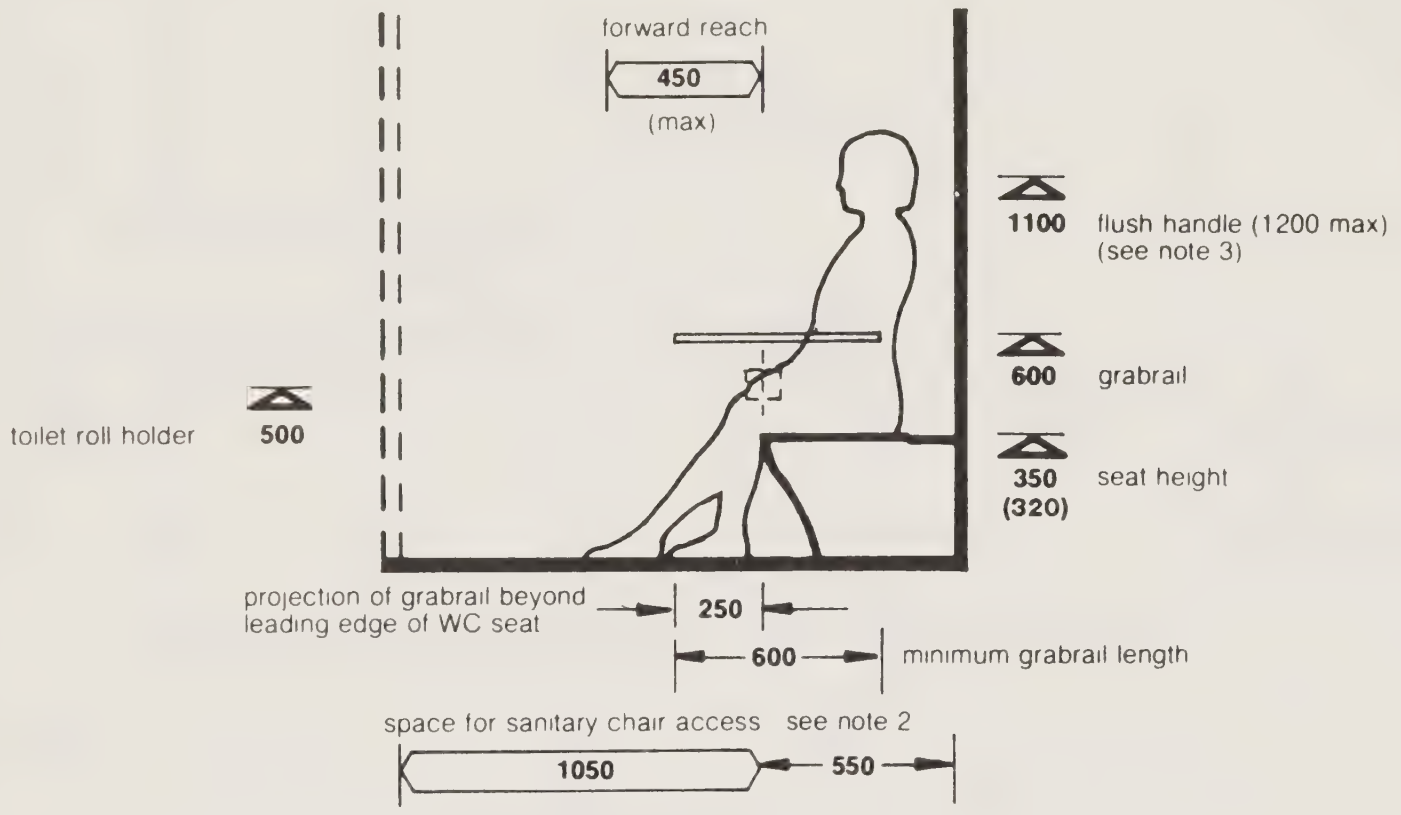
Activities
Use of WC including sanitary chair access and assistance by adult from front and one side

Ergonomic data bank:
Component-user data sheet, not to scale

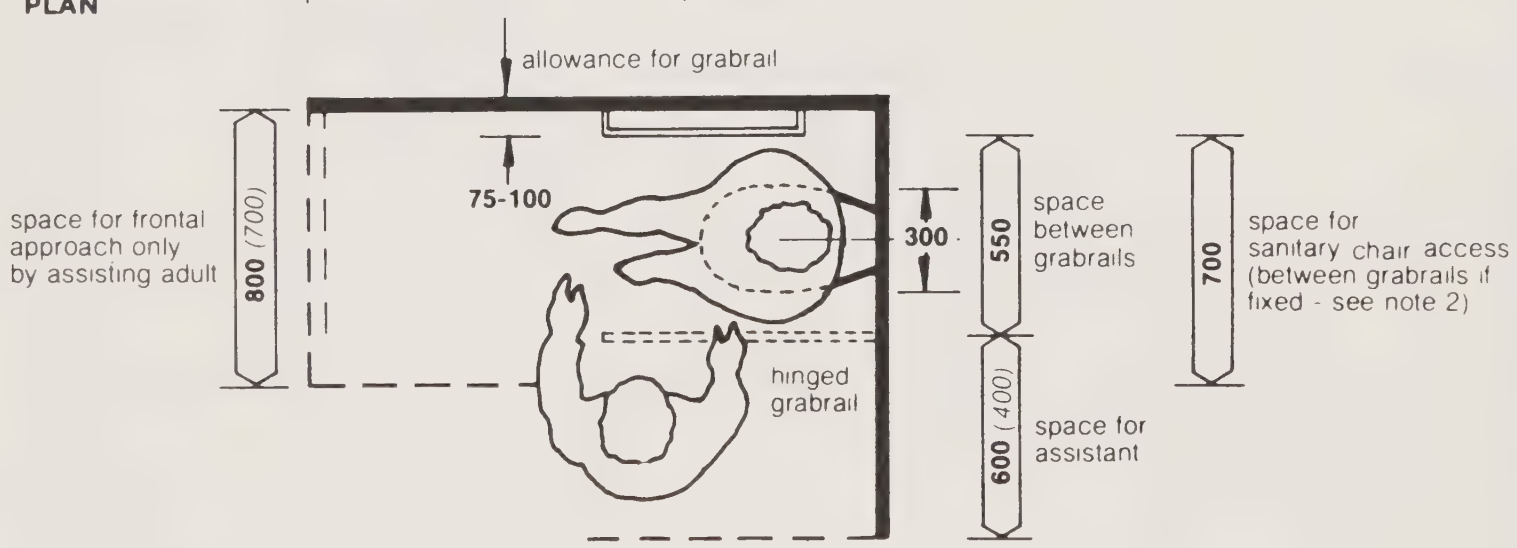
WC
Childs

Users
Children 7-11

ELEVATION



PLAN



1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use see explanatory notes)*

Notes

1. The restricted space of (800) in front of the WC is adequate where space to assist from one side is available. Sanitary chairs are not generally satisfactory in use over infant W.C.'s. Young children can be easily transferred from a transporting chair to the WC seat, so that sanitary chairs manoeuvring is not critical for this age group

2. A width of 700 between fixed grabrails is too great and therefore not satisfactory for this age group Sanitary chair access is consequently only recommended in facilities with space at the side of the WC for assisting adults. N.B. some sanitary chairs also require a large WC pan for satisfactory location over the bowl ie. a projection of 600 instead of the 550 shown.

3. Flush handles lower than 1100 may obstruct sanitary chair location over the WC

Activities
Sitting
Sitting at a table (eg dining, play, study)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

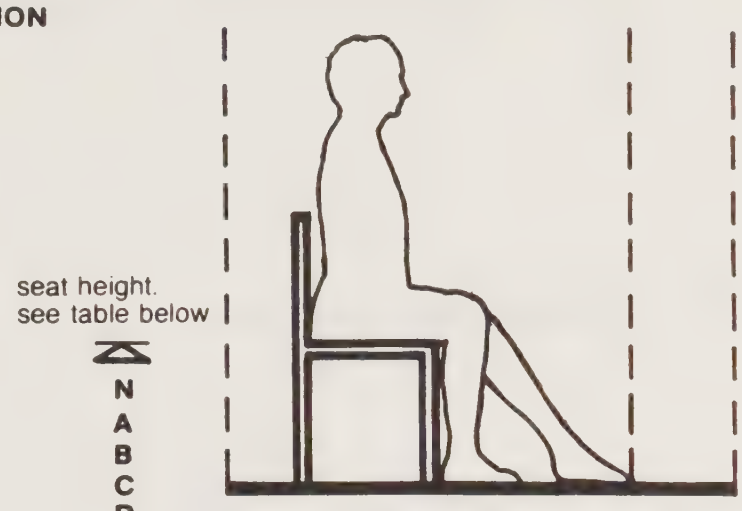
Chair
Chair & Table

Childrens

Users
Children, age range 3-15 (ages last birthday)

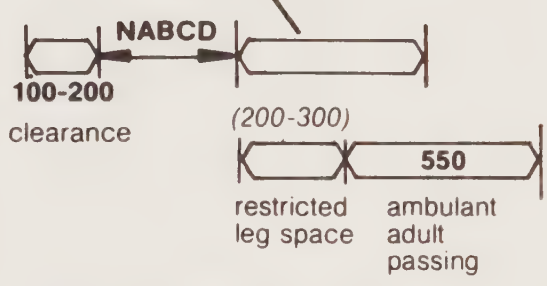
ELEVATION

CHILD — SITTING ON CHAIR

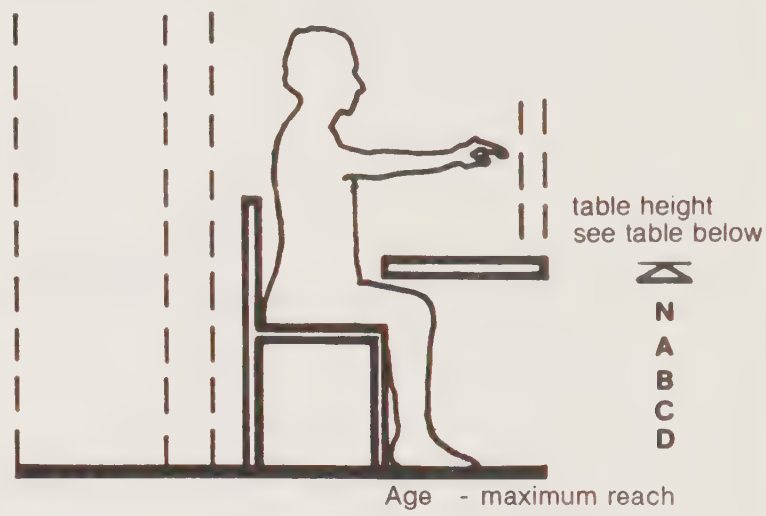


Age - space for extended legs (large boy)

3	**350**
7	**450**
11	**550**
15	**600**

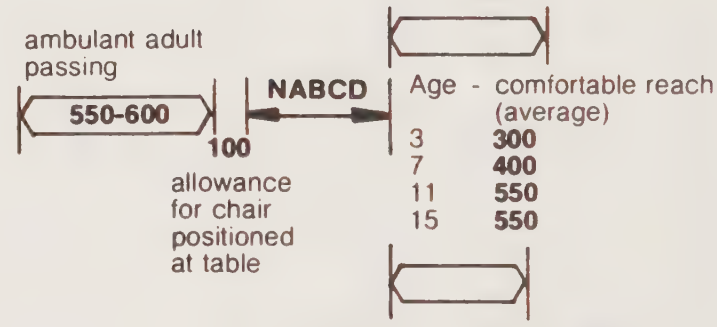


CHILD — SITTING ON CHAIR AT TABLE



Age - maximum reach (small girl)

3	**350**
7	**450**
11	**550**
15	**650**



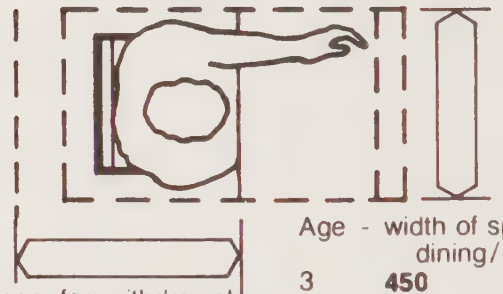
Age - comfortable reach (average)

3	**300**
7	**400**
11	**550**
15	**550**

PLAN

Age - space for seated child

3	**500**
7	**600**
11	**750**
15	**800**



Type - space for withdrawal (also affords adult access behind table)

N	**550**
A	
B	**600**
D	**750**

Age - width of space for dining/play/study

3	**450**
7	**500**
11	**550**
15	**550**

CHAIRS & TABLES — SIZES & AGES (see also BS5873 pt. 1 School Furniture 1980, amd 4098 Sept. 1982)

TYPE	SEAT HEIGHT	SEAT SIZE (depth x width)	TABLE HEIGHT	AGES (last birthday) Approximate distribution of sizes appropriate for particular ages of children
N	**260**	**250-270 x 250**	**460**	3-5
A	**300**	**280-300 x 270**	**520**	5-7
B	**320**	**280-300 x 270**	**540**	7-9
C	**340**	**320-340 x 290**	**580**	9-11
D	**380**	**350-370 x 320**	**640**	11-15
ADULT	**420**		**700**	Adult

1350 | *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use; see explanatory notes)*

CHILDREN'S DEPARTMENT – where there is a potentially large age range, but a relatively small number of children, it may not be practical to have a large range of alternative sizes of chairs and tables.

Notes
SELECTING CHAIRS AND TABLES FOR A

Activities
Parking prams, attending to, loading/ unloading baby

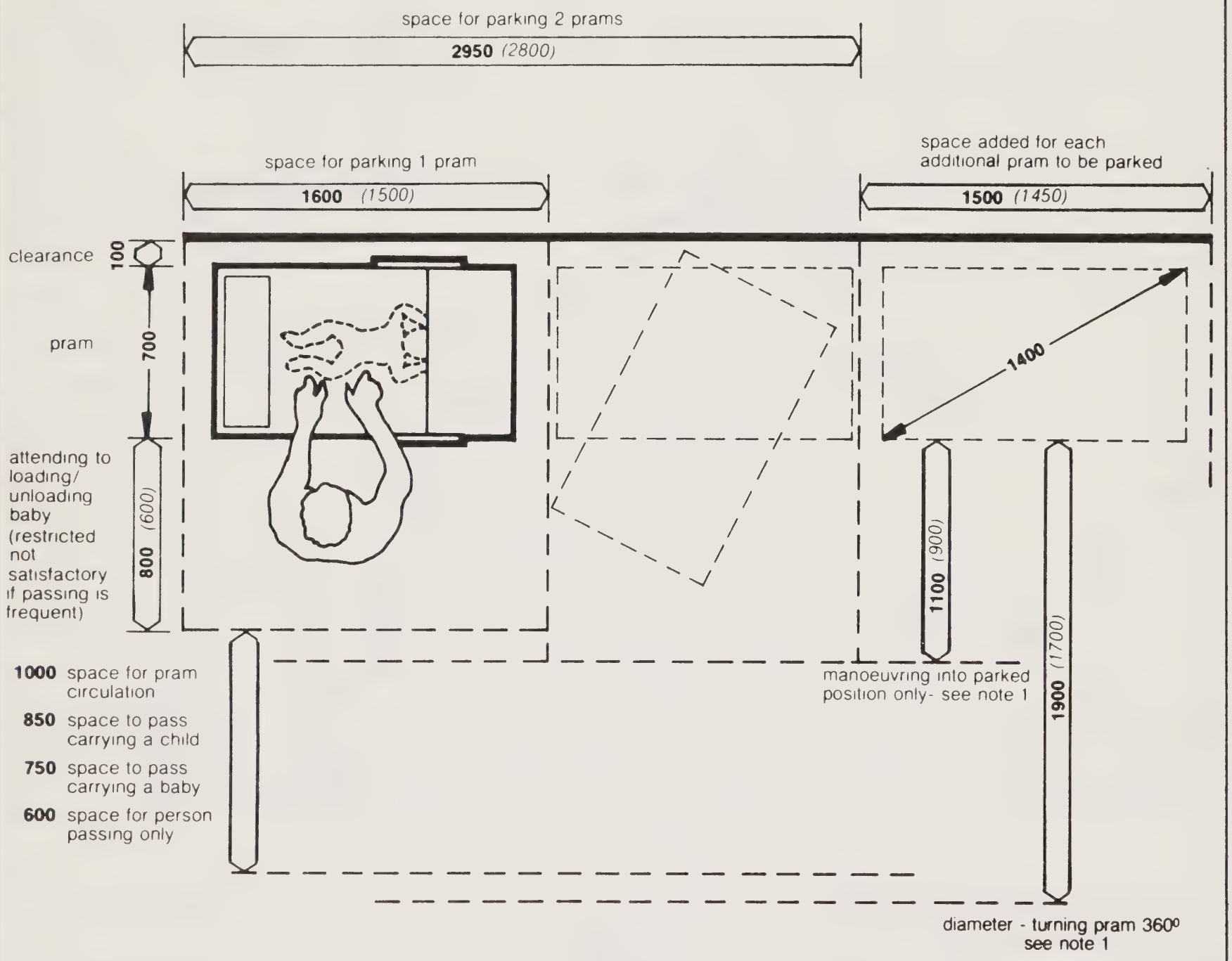
Ergonomic data bank:
Component-user data sheet, not to scale

Pram (1)

Large 1250 long x 700 wide

Users
Staff or parent

A PARKING PARALLEL TO WALL (baby can be taken out of pram after parking — manoeuvring pram into parked position is difficult)


space for parking 2 prams
2950 (2800)
space for parking 1 pram
1600 (1500)
space added for each additional pram to be parked
1500 (1450)
clearance
100
pram
700
attending to loading/ unloading baby (restricted not satisfactory if passing is frequent)
800 (600)
1400
1100 (900)
1900 (1700)
1000 space for pram circulation
850 space to pass carrying a child
750 space to pass carrying a baby
600 space for person passing only
manoeuvring into parked position only- see note 1
diameter - turning pram 360° see note 1

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Where the 1100 (900) allowance is used in a large busy pram park, separate space, for loading and unloading must be provided; also space for turning manoeuvre (360° turn) must also be provided conveniently near (the diameter of space being 1900 (1700))

Activities
Parking prams, attending to, loading/unloading baby

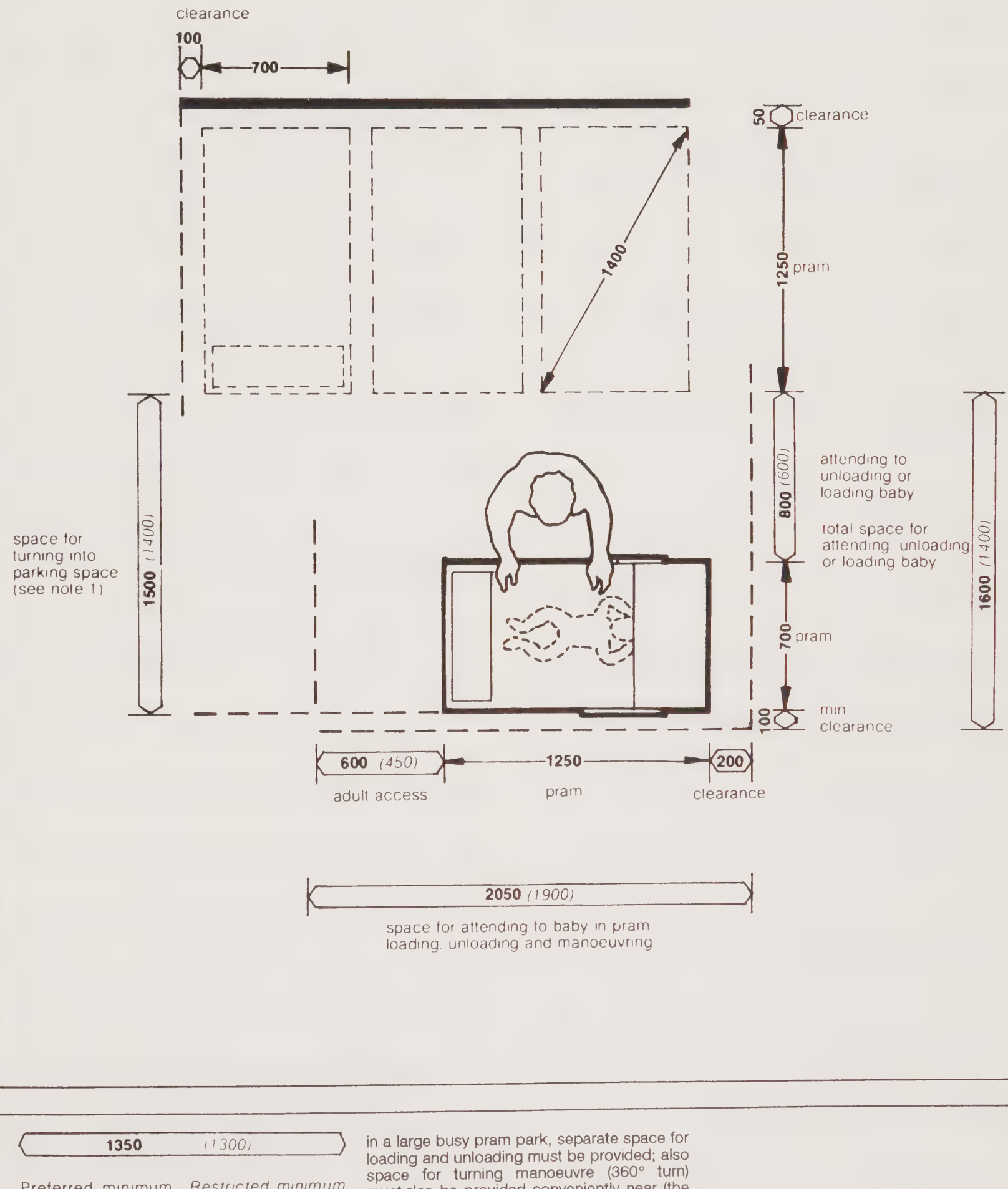
Ergonomic data bank:
Component-user data sheet, not to scale

Pram (2)

Large 1250 long x 700 wide

Users
Staff or parent

B PARKING AT 90° TO WALL (baby MUST be taken out of pram before parking — manoeuvring to park is easy)



1350 *(1300)*

Preferred minimum — *Restricted minimum (not recommended for general use, see explanatory notes)*

in a large busy pram park, separate space for loading and unloading must be provided; also space for turning manoeuvre (360° turn) must also be provided conveniently near (the diameter of space being 1900 (1700)).

Notes:
1. Where the 1500 (1400) allowance is used

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Estatecode – user manual for managing a health estate. Includes a recommended methodology for property appraisal and provides a basis for integration of the estate into corporate business planning. *HMSO*

Capricode – a framework for the efficient management of capital projects from inception to completion. *HMSO*

Concode – outlines proven methods of selecting contracts and commissioning consultants. Reflects official policy on contract procedures. *HMSO*

Works Information Management System – a computerised information system for estate management tasks, enabling tangible assets to be put into the context of servicing requirements. *NHS Estates*

Health Building Notes – advice for project teams procuring new buildings and adapting or extending existing buildings. *HMSO*

Health Facilities Notes – debate current and topical issues of concern across all areas of healthcare provision. *HMSO*

Health Guidance Notes – an occasional series of publications which respond to changes in Department of Health policy or reflect changing NHS operational management. Each deals with a specific topic and is complementary to a related Health Technical Memorandum. *HMSO*

Encode – shows how to plan and implement a policy of energy efficiency in a building. *HMSO*

Firecode – for policy, technical guidance and specialist aspects of fire precautions. *HMSO*

Concise – software support for managing the capital programme. Compatible with Capricode. *NHS Estates*

Model Engineering Specifications – comprehensive advice used in briefing consultants, contractors and suppliers of healthcare engineering services to meet Departmental policy and best practice guidance. *NHS Estates*

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